ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF MEDICINE

DEPARTMENT OF INTERNAL MEDICINE

RETROSPECTIVE ANALYSIS OF ETIOLOGY, CLINICAL PROFILE AND MANAGEMENT OUTCOME OF UPPER GASTROINTESTINAL BLEEDING IN PATIENTS SEEN AT TIKUR ANBESSA SPECIALIZED HOSPITAL BETWEEN DECEMBER 2018 TO DECEMBER 2019

A Thesis submitted to Department of Internal Medicine, School of Medicine, College of Health Sciences, Addis Ababa University, in partial fulfillment of Specialty certificate in Internal Medicine

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ABSTRACT

Background: Upper gastrointestinal bleeding (UGIB) is one of the most of common medical emergencies patients visit to Emergency department having significant morbidity and mortality**.** The causes and outcomes of UGIB differ geographically depending on demographic differences and socioeconomic status of local population.

Objectives: To assess the etiology, clinical profile and management outcome of patients admitted with UGIB at TASH.

Methods and Materials: A Single centered retrospective study was conducted to determine the etiology, clinical profile and management outcomes of patients seen with UGIB at TASH over a period of one year (from December 2018 to December 2019). Data was collected analyzed using the latest SPSS version 26. Associations was done by chi-square test for categorical tests and considered to be statistically significant when the P value is below 0.05.

Result: A total of 101 patients were enrolled in this study, 52.4% of patients were from outpatient and the rest were admitted patients. Majority of Patients (47.5%) were from Addis Ababa. Most patients had age less than 40 and the male to female ratio was 2.6:1.The most common clinical presentation was hematemesis seen in 42(41.6%) of patients. Risk factors identified were history of alcohol intake in 60 (59.4%), prior liver disease in 24 (23.4%), Smoking history in 10 (9.9%) patients respectively. The most common comorbidities were HTN and DM each accounts for 10% of patients. The most endoscopic finding was Esophageal varices seen in 34(33.7%) of patients followed by DU which is seen in 20 (19.8%) of patients.70 were managed only medically while 31 patients managed endoscopically. Timing of endoscopy was assessed for admitted patients and 30 (62.5%) of patients got endoscopy done after 24 hours. The most common endoscopic procedure was EVL which is done for 26 (25.7%) of patients. Patients who stayed in the wards for less than 7 days had 91% less risk of developing in hospital complications.

Conclusion: In this study, most of patient has age less than 40 years, males are predominant and esophageal varices are the most common etiology identified.

Key words: Upper gastrointestinal bleeding, clinical profile, management outcomes, TASH

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List of Abbreviations and Acronyms

AAU: Addis Ababa University

AKI: Acute Kidney injury

ALT: Alanine Transaminase

ANVUGIB: Acute non variceal upper gastrointestinal bleeding

AST: Aspartate Transaminase

CKD: Chronic kidney disease

DU: Duodenal ulcer

DM: Diabetes mellitus

EGD: Esophago-gastroduodenoscopy

GI: Gastrointestinal

GU: Gastric ulcer

HTN: Hypertension

IHD: Ischemic Heart disease

NSAIDs: Non-steroidal anti-inflammatory drugs

NVB: Non variceal bleeding

PHG: Portal Hypertensive Gastropathy

PT: Prothrombin time

TASH: Tikur Anbessa Hospital

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1. INTRODUCTION

1.1. BACKGROUND

Upper Gastrointestinal area is an area which extends from the oral cavity up to the ligament of treitz. Upper Gastrointestinal Bleeding patients can present with passage of fresh bright vomiting, coffee ground colored vomiting and when it's massive with bright colored stool (1).

UGIB is one of common reason for Emergency Hospital Admission worldwide and it's associated with significant morbidity and mortality (2). The incidence of upper gastrointestinal bleeding was found to be 48-160/100,000 population per year in a study which is done in United States of America and it was twice higher in males than females (3).

The causes and outcomes of UGIB differ geographically depending on demographic differences and socioeconomic status of local population (4).

Upper GI Endoscopy is crucial diagnostic modality having better diagnostic yield and also provides opportunity for interventions like band ligation, clipping, Sclerotherapy and Biopsy. However, Epidemiologic studies are Limited for developing countries regarding the etiology and clinical profile of UGIB (5).

1.2. Statement of the problem

Acute UGIB is a medical emergency having significant impact on mortality and morbidity. The annual incidence being 48 to 160 cases per 100,000 population in USA and mortality of around 7 to 10 %. In all age groups the incidence of UGIB is 2 fold greater in males than females; however death rate is similar between the two sexes. When compared with age groups mortality is much significant in those patients who are greater than 60 years (6).

In a study which was done in rural central India after screening of 132 patients who presented with UGIB and Including 118 who are eligible the clinical presentation was both hematemesis and melena (43%), melena (32%), and Hematochezia (23%).The risk factors in the study were Alcohol

(47%),Smoking (30%),recent NSAIDS consumption(20%) ,Hepatitis B (7.5%) and Hepatitis C (4.4%).(ref) Regarding the Hematologic and biochemical profiles; Anemia was found in 87.3 % of patients with mean Hemoglobin of 8.4g/dl, abnormal platelet count in 52.5%,raised creatinine seen in more than half of patients and hyperbilirubinemia in 48.7%,and increased Alanine transaminase(ALT), Aspartate transaminase (AST), Prolonged Prothrombin time(PT) in 40.6%,55.9% and 46.2% respectively (5).

From 10,000 patients for whom EGD was done in Tikur Anbessa hospital to assess indications, UGIB accounts for 802 (18%) which is the second one preceded by Dyspepsia. The study also asses endoscopic findings in 1802 patients with UGIB, the most common cause is (DU) Duodenal ulcer (45.6), Lesions with no Bleeding potential (12.6%), Esophageal varices (15.6), Acute Gastritis (5.7%), Gastric Cancer (3%), Normal findings (8.9%) and other findings (6.6%) (7).

There are data regarding etiology and endoscopic findings of patients having UGIB in Ethiopia but its limited in assessing clinical profiles and management outcomes of patients with UGIB. So the aim of this study was to assess detailed clinical profiles, management of the cause of UGIB, and management outcomes since we had a lot of patients having UGIB recently and Endoscopic gastroduodnoscopy (EGD) is also a routine procedure compared to the past in TASH.

1.3. Significance of the study

This study will have significant impact in the field of gastroenterology for AAU, college health science in identifying the etiology, clinical profile and management outcome of UGIB. There are few studies regarding endoscopic profiles of patients having UGIB in Ethiopia and this study will add a lot by describing other factors related to UGIB in Ethiopia and also the data can be used in other African countries due to related demographic and socioeconomic factors.

2. LITERATURE REVIEW

2.1. Epidemiology and Etiology of UGIB

From March 2005 to February 2006, 53 French general hospitals participated in a prospective Study on the epidemiological characteristics, management, and outcome of UGIB and evaluated a total of 3298 patients admitted for UGIB up to discharge date. The two main causes of bleeding were peptic ulcers (38 %) and esophagogastric varices (EGV) or portal hypertensive gastropathy (24.5 %). Clinical presentations of patients were melena (63.9%), hematemesis (58%), anemia only (6.9%). Hemodynamic instability were seen in 8% of patients and 12.8% of patients were admitted to the Intensive care unit (8).

From population based prospective study which is conducted in Iceland and Sweden over one year study period involving 1731 patients resulted in 156 patients having UGIB making the crude incidence of 87/100,000 inhabitants per year (9).

A study conducted to review epidemiological, clinical, therapeutic and prognostic changes occurred over the past 20 years involving two cohorts of 200 patients revealed that in the older age group having variceal bleeding and duodenal ulcers is more prevalent than gastric ulcers. Another important epidemiologic change concerns the etiologies of UGIB. Peptic ulcer remains the main cause of UGIB despite declining in magnitude compared to the past. But the incidence of variceal hemorrhage was stable during the past 20 years despite screening and offering primary and secondary prophylaxis for patients (10).

Another study which aimed to review etiology and clinical profile over the past 15 years comparing two study groups in two study periods; the first from January 1986 to December 1987 and the second from January 2000 to December 2001.In both study periods Peptic ulcer disease (PUD) was the most common cause with increasing in rate of diagnosis of (GU) Gastric ulcer (12% Vs 19%) and decreasing rate of DU (48.7% Vs 33.3%) as a cause of bleeding. The second causes of bleeding were Erosive lesions of the duodenum and stomach and variceal bleeding in the first and second study periods respectively (11).

Retrospective study of 1500 patients who had undergone upper GI endoscopy for whatever reason was evaluated and there were 342 (24%) upper GI bleeders. The mean age of presentation was 55.5 years +/-14.4 SD. A high proportion was seen between 50-70 years age and Sex distribution was M: F (2:1). 45% have presented with hematemesis, 31% with melena, and 24% with both. Endoscopy showed the presence of severe antral gastritis and duodenitis, esophageal varices, esophagitis, erosive gastropathy, portal hypertensive gastropathy, pan- gastritis and peptic ulcer disease in 38%, 35%, 28%, 28%, 20%, 17% and 15% of the instances respectively (12).

A study conducted over a period of 6 years to evaluate epidemiology of UGIB and prevalence of helicobacter pylori infection revealed the most common cause to be PUD. The mean age of *H. pylori*-positive patients was 60.47 ± 16.9 years, while those free of infection were 65.73 ± 14.8 years old (95%CI 3.5 to 7.0, $P < 0.001$).*H. pylori* infection was more prevalent in male (30.8%) than female (22.1%) patients ($P < 0.001$). The prevalence of *H. pylori* infection declined with older age. The highest prevalence was 43.8% in patients <40 years old and the lowest prevalence was 21.7% in patients older than 79 years (13).

Prospective study done over a period of 2 years in Gastroenterology and Hepatology unit in Romania involving 1284 patient having liver cirrhosis and esophageal varices on endoscopy from prior records who met the inclusion criteria, 297 patients had UGIB and 199 were from varices (91.7% from esophageal varices and 8.3% from gastric varices) and the remaining from NVB and DU was the most common cause. (14)

A retrospective chart review of 40 cases of upper gastrointestinal bleeding was undertaken at an inner city Washington, D.C., hospital between January 1997 and March 2001 who had liver cirrhosis and in this study 11 patents had only varices. Seventeen had varices plus coexisting lesions, of whom nine bled from varices and eight bled from the coexisting lesions. Twelve bled from other lesions. Thus, while there were varices in 28 (70%) patients, 20 (50%) bled from varices. (15)

2.2. Clinical and Endoscopic Profile

Retrospective study was conducted in patients having UGIB within 2 year period of time in Tanzania Kilimanjaro Christian medical center involving a total of 130 patients. Varices were seen in 55 patients followed by Non variceal Bleeding 40 patients, and causes not known in 35 patients. The median age of patients were 39. Grading of Variceal bleeding endoscopically were grade 1(3.6%), grade 2(23.1), grade 3(25.5%) and grade 4(47%). From those having Non variceal bleeding, DU (50%), erosive/hemorrhagic gastritis (25%), GU (15%), mallory weiss tear (5%) and duodenitis (5%) (16).

Study of 131 patients having Hematemesis and melena over 4 years by using clinical and endoscopic profile of patient, males were 101 and females were 30. Mean age of patients was 43.85 ± 18.63 (range 14 -90 years). Most of patients had both hematemesis and melena 66 (50.4%), 33.6% hematemesis only and melena only in 16%. 34 (33.7%) of males were smokers and history of alcohol intake taken from seven patients. Ingestion of NSAIDs (Non-steroidal anti-(inflammatory drugs) were seen in 38 (29%), paracetamol (PCM) 13 (9.9%) and both NSAIDs and PCM in 2(1.5%).13 patients had portal Hypertension related UGIB and causes were Hepatitis B 7(69.23%), Hepatitis B and Alcohol 1(7.7%), Hepatitis C (7.7%), Alcohol (7.7%), and cryptogenic 2(15.4%) .Comorbidities are seen in 22 patients and classified as Diabetes mellitus (DM) (8 patients), Hypertension (HTN) (8 patients), ischemic heart disease (IHD) (2 patients), chronic kidney disease (CKD) (2 patients) and were taking Aspirin. The most common endoscopy finding was DU (32%), GU (6.8%), Both GU and DU (4.6%), esophageal Varices (9.9%), gastric erosion (11.45%) and carcinoma of stomach (17).

Review of retrospective case series analysis of 928 patients admitted to GI department from January 2001 to June 2006 revealed male to female ratio of 3:2 and median age was relatively younger for males with 49.6 years and 53.9 years for females. Regarding the predisposing factors smoking was seen in 18.6% and NSAIDs in 9.7% of PUD and both of them were related mostly to DU .From the comorbidities DM was seen in 18.7% and HTN in 13.6% patients. Peptic ulcer disease was the most common endoscopic finding 43.4% from which DU (36.4%) and GU (7%), Varices 33.2% (esophageal varices 21.2% and Fundal varices 2%), Reflux erosions 21.6% (reflux esophagitis 10.7%, gastric erosions 5.2%, duodenal erosions 5.7%), Gastritis(3.4%) and

Duodenitis(2.5%).Findings by the site of bleeding Esophagus (male 52.8% and female 47.2%), Stomach (male 56% and female 44%) and duodenum(male 70.7% and female 29.3%) (18).

Hospital based Cross sectional study of 158 patients with Non variceal bleeding (NVB) over a period 6 months revealed age group of 51-60 to be most common in 31%, males are seen in 67.7% and females in 32.3% .Risk factors were assessed and chronic NSAIDs use (70.9%), Smoking (64.6%), and alcoholism (54.4%). 58.2% of patients required blood transfusion due to NVB. The most common EGD finding was DU (30.4%) and 22.8% due to antral gastritis, esophageal candidiasis and gastric cancer (19).

Another retrospective study to evaluate clinical and endoscopic profile of NVB including 460 patients over a period of 4 years has revealed the most common symptom to be melena and most of the had comorbidities (57.6%) and from which cardiovascular disease took the majority.43.7% of patients were taking ASA and other NSAIDs and 5.2% were on anticoagulants. Endoscopy was performed for majority of patients within 24 hours and the most common cause was PUD (82.2%) and most ulcers were Forrest III classification (41.6%) (20).

Retrospective study of 410 patients seen over a period of 1 year revealed 61.95% of patients presented with both hematemesis and melena, 25.85% with hematemesis and 12.2% with melena. Sex distribution results male (83.6%) and females (16.4%) with age group range of 51-70 being the most common. Esophageal varices is the most common finding and from which 24.6% were large varices and 20.4% were small, PUD seen in 35.12% (GU 24.6% and DU 14.4%) and Portal HTN related causes of UGIB (portal vein gastropathy and duodenopathy) were seen in 35.36% of patients. Biopsy sent from patients having PUD revealed positive H. pylori result in 18.05% of patients (2).

2.3. Management and outcome

Retrospective analysis of 176 patients who undergone Upper GI endoscopy over 2 years revealed underlying medical illness being detected in 113 patients (64.2%) and history of PUD was found in 27 patients (15.3%) .Endoscopic treatment was performed for 42 patients (23.8%).Of which 23(61.9%) had esophageal varices, 8(19%) gastric ulcers, 5(11.9%) duodenal ulcers, 2(4.7%) Mallory Weiss tear and 1(2.4%) Gastric cancer. Injection sclerotherapy of esophageal varices was performed with ethanolamine oleate and non variceal lesion with 98% alcohol and eventually

Epinephrine (1:10,000).After first endoscopic intervention permanent hemostasis was achieved in 87.5% in variceal bleeding patients and 84.6% in non variceal bleeding. Rebleeding was seen 9.2% of patients and it's more common in those having non visible vessel on endoscopic evaluation (2 patients out of 3). Blood transfusion requirement in unit of packed RBC transfusion averagely was 1.44(±1.99) per patient, with maximum unit of 9 units. The average length of stay was 7.71 (± 12.2) days and overall mortality was 15.34% (21).

Descriptive study over a period of 7 years of patients who underwent EGD, 287 (12.4%) patients had upper GI bleeding. 52 patients were having variceal bleeding, 15(28%) had injection sclerotherapy and 5(33.3%) had rebleeding from varices after sclerotherapy. 21 patients (40.4%) had variceal band ligation and 18 patients had two sessions of variceal eradication.42 patients having ulcer had endoscopic therapies and in 90.5% of cases effective therapy was given. 19 patients undergone surgery and indications being DU not responding to medical and endoscopic therapy in 5 patients, Gastric malignancy in 6 patients and Gastrointestinal stromal tumor in 8 patients. Blood transfusion requirements are different between endoscopic and non-endoscopic treated patients and its 3 ± 3.6 and 4.7 ± 5.7 units respectively. Overall length of stay ranged from 1 to 20 days and median being 4.5 days. Mortality was 5.9% (17 deaths) and it's higher in those who didn't undergone endoscopy than who undergone endoscopy (22).

After enrolling 921 patients with severe acute upper gastrointestinal bleeding and randomly assigning 461 patients to a restrictive strategy (transfusion when the hemoglobin level fell below 7 g per deciliter) and 460 to a liberal strategy (transfusion when the hemoglobin fell below 9 g per deciliter). A total of 225 patients assigned to the restrictive strategy (51%), as compared with 61 assigned to the liberal strategy (14%), did not receive transfusions ($P<0.001$).Mortality was assessed after 6 weeks and it was higher on the liberal group (9%) compared to restrictive (5%) (23).

Multicenter retrospective study was done over a period of 4 years using 350 patients to assess determinants and outcome of UGIB. The most common cause of UGIB was esophageal varices (90%), erosive gastritis (3.43%) and peptic ulcers (DU: 3.43%, GU: 2.57%). From 102 patients who were bleeding at the time of endoscopy, 89 patients were transfused with a total of 115 units of blood and mean was 1.13 units. And from 248 patients who weren't bleeding at endoscopy, 150

were transfused with a total of 300 units and mean was 1.21 units. Compared with patients who weren't bleeding at the time of endoscopy (mean 0.097) the length of stay was 2 to 5 days (mean 2.43 days). Regarding mortality there were a total of 20 deaths and 15 were males and the mean and median age was 77 and 76 respectively. The overall mortality was 5.72% and risk factors were those who are aged and having comorbidities like Diabetes, stroke, pulmonary embolism, Hypertension and etc. (24).

Prospective study of 170 patients who are admitted due to UGIB to assess risk factors associated with mortality over a period of 1 year and 6 months and followed for 60 days revealed 86 patients underwent endoscopy and causes were esophageal varices (57%), PUD (18.6%) and gastritis (10.4%). After being followed for 60 days, 57 patients died (33.5%). From the 57 patients that died, 24 were in the first 24 hours after admission, 49.1% died within 72 hours after admission and majorities (96.5%) died 30 days post admission. Mortality was significantly higher in those having high WBC count, elevated ALT, high total Bilirubin level, and those who didn't undergone endoscopy 2.5X, 4X, 6X and 4X compared to those without elevated WBC ,ALT, total bilirubin and those who undergone endoscopy respectively (25).

Prospective study done to determine clinical profile, severity and outcome of UGIB compared elderly (>60 age) and Non elderly (<60 age) using 380 patients revealed the proportion of patients with co-morbidity, consumption of non-steroidal anti-inflammatory drugs and oral anticoagulant use to be higher among elderly patients. The proportion of patients with tachycardia (68.2% vs. 20%, $p<0.05$) and postural hypotension (29.3% vs. 14.9%, $p<0.05$) was significantly higher among elderly group as compared to non-elderly group (26).

Canadian review of trends of management and outcomes of acute non variceal upper gastrointestinal bleeding (ANVUGIB) revealed between 1993 and 2003, ANVUGIB incidence decreased from 77.1 cases to 53.2 per 100,000/y. The proportion of ANVUGIB subjects requiring surgical intervention declined over 10 years from 7.1% to 4.5%, length of stay decreased form 8.4 days to 6.8 days but mortality remained constant during the study period (27).

3. 0BJECTIVES

3.1. General Objective

To determine etiology, clinical profile and management outcomes of UGIB in patients seen at TASH from December 2018 to December 2019

3.2. Specific Objectives

- To determine the etiology of UGIB in patients seen at TASH over the past 1 year.
- To determine clinical profile of patients with UGIB seen at TASH over the past 1 year.
- To determine management and management outcomes of patients treated for UGIB over the past 1 year.

4. METHODS AND MATERIALS

4.1. Study area

The study was conducted in TASH, One of the oldest university specialized hospital in Ethiopia, located in Central part of the country.

4.2. Data collection period

Study period was from Feb 1, 2020 – Jan 1, 2021 GC, TASH, and Addis Ababa, Ethiopia

4.3. Study Design

Retrospective study was conducted from data collected from HMIS and other patient data registries to assess etiology, clinical profile and management outcomes of UGIB using pretested questionnaire.

4.4. Source and study population

4.4.1. Source population

The source population of this study was all patients seen at GI Clinic, TASH during the study period.

4.4.2. Study population

The study population of this study was all patients with diagnosis of UGIB, seen during the study period.

4.5. Inclusion and Exclusion criteria

4.5.1. Inclusion Criteria

- ✓ Patients with UGIB
- ✓ Age ≥ 18
- ✓ Patients having EGD

4.5.2. Exclusion Criteria

- ✓ Incomplete information in the document
- ✓ Cause of bleeding undetermined due to not having EGD before death or discharge.

4.6. Study Variables

4.6.1. Dependent variable

- ✓ UGIB
- ✓ Length of Stay
- ✓ In hospital medical compilations

4.6.2. Independent variables

- ✓ Sociodemographical factors including age, sex, marital status, place of residence, occupation, education and risk factors.
- ✓ Medical History (Prior UGIB, Liver disease,
- ✓ Clinical features of study subjects
- ✓ Hematologic and biochemical profiles of study subjects (Hgb, MCV, PLT, Urea, Creatinine, AST, ALT, ALP, PT, PTT, INR, Albumin and Bilirubin)
- ✓ Comorbidities (HTN, DM, IHD, Stroke…)
- ✓ Timing of Endoscopy
- ✓ Endoscopic profiles of study subjects
- ✓ Blood Transfusion

4.7. Operational definitions

Upper gastrointestinal bleeding: is gastrointestinal bleeding in the upper gastrointestinal tract, commonly defined by clinical manifestations of hematemesis, melena or hematochezia or as bleeding arising from esophagus, stomach, or duodenum diagnosed during endoscopy.

4.8. Sample size and sampling technique

The sample size was all patients with UGIB seen at GI unit, TASH during the study period that means from December 2018 to December 2019.

4.9. Data collection Procedures

4.9.1. Data collection instruments

Structured questionnaire was used to reach the objectives. It was developed and adapted from other related researches in a way that addressed the objectives of the study.

4.9.2. Data quality measurements

Questionnaire was prepared in English version adopted and modified from different literatures were used to collect data from patients chart. Patient MRN was taken from HMIS books and given to chart room staffs to get patients charts. Training was given to data collectors to make them familiar with it. The data collectors was the investigator, interns and staff nurses. Continuous follow up and supervision was done by the principal investigator. In order to check if the questionnaire is clear and addressing the objective, questionnaire was pre-tested on a 5% of samples. The collected data was checked for completeness before execution of any data entry process.

4.9.3. Data Analysis and presentation

Data was entered into SPSS version 26 manually. Data was analyzed and result was summarized by using descriptive statics. Associations were done by chi-square test for categorical tests and considered to be statistically significant when the p value is below 0.05. Confidence interval and power are set at 95% and 80% respectively.

5. ETHICAL CONSIDERATION

The study proposal was submitted to department of internal medicine and ethical clearance was issued by the department of internal medicine and college of medicine and health sciences. Before data collection, a brief explanation about the objective and significance of the study was given for the data collectors.

6. DISSEMINATION OF RESULTS

The results of the study will be presented to Addis Ababa University, college of medicine and health science and department of Internal Medicine. After research defense the manuscript will be sent for publication.

7. Results

7.1 Socio demographic Data

A total of 101 patients were enrolled, 53 (52.4%) from out patients and the remaining 48(47.6%) from the inpatient departments of TASH. Majority (72.3%) of the patients were male and 52.5% were younger than 40 years of age. 47.5% were from Addis Ababa.

Table 1: Socio demographic factors in patients with Upper gastrointestinal bleeding seen at TASH between December 2018 to December 2019 (N=101)

Variable		**Frequency**	**Percentage**
Age Group	< 40	53	**52.5**
	40-60	28	27.7
	>60	20	19.8
Gender	Male	73	**73.3**
	Female	28	27.7
Address	Adiss Ababa	48	**47.5**
	Oromia	29	28.7
	Amhara	6	5.9
	SNNPR	15	14.9
	Others	3	3
Patients enrolled from (Department)	Outpatient	53	**52.4**
	Inpatient	48	47.6

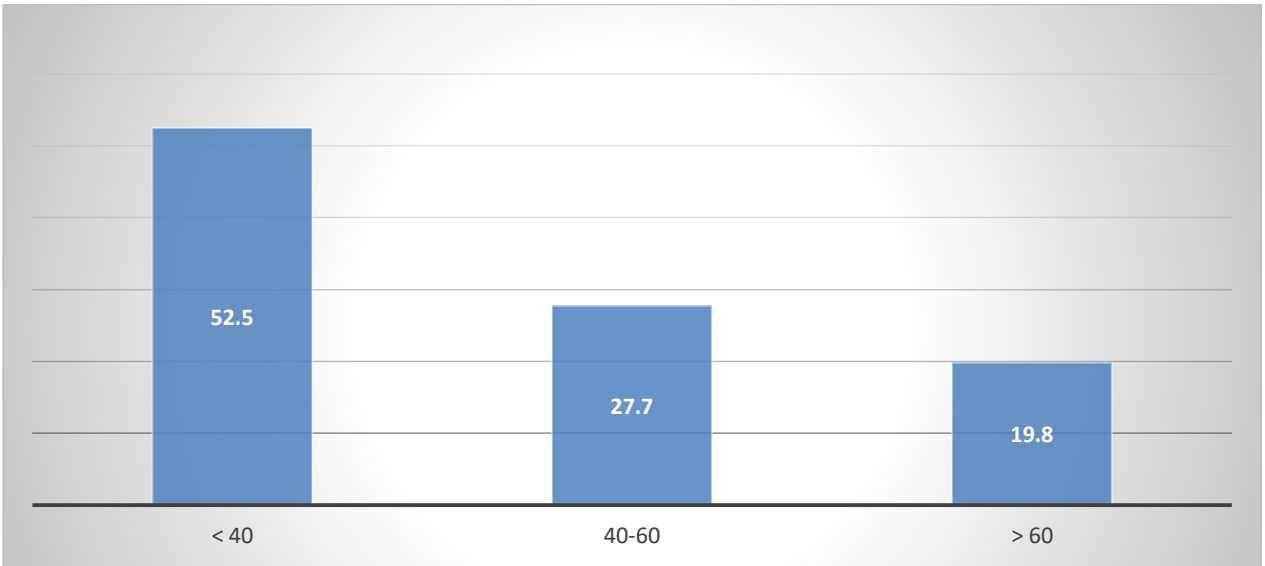

Figure 1:Age Distribution patients with Upper gastrointestinal bleeding seen at TASH between December 2018 to December 2019

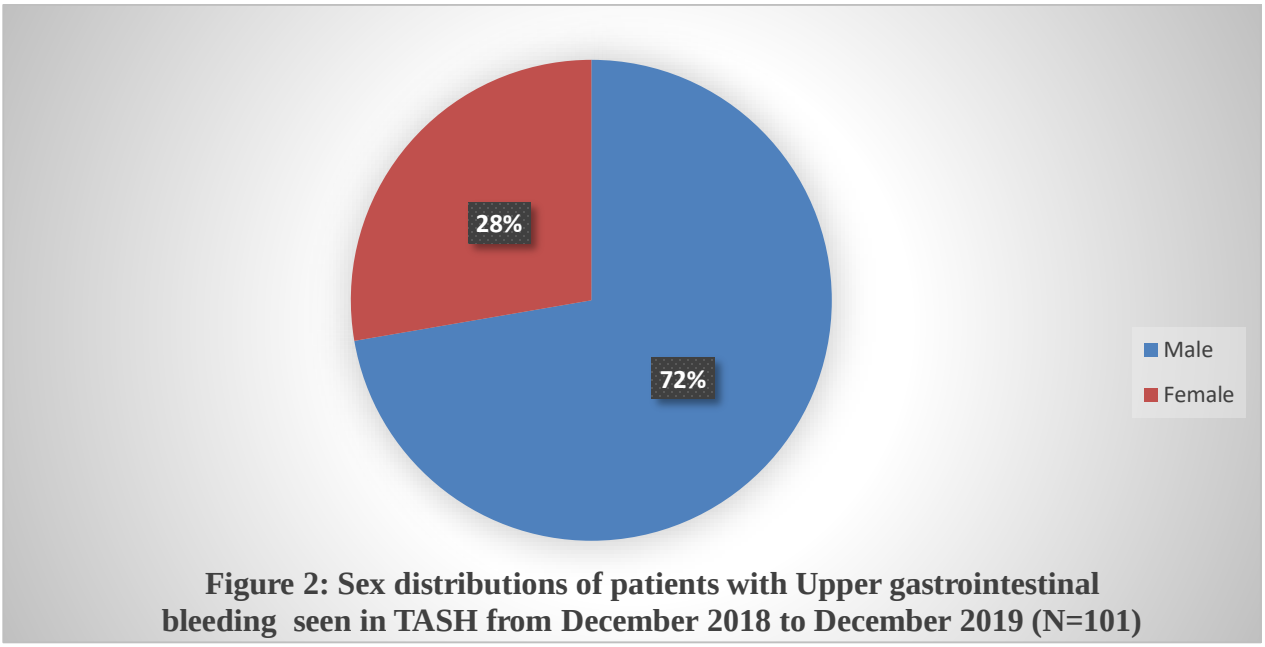

Figure 2: Sex distributions of patients with Upper gastrointestinal bleeding seen in TASH from December 2018 to December 2019 (N=101)

7.2 Risk factors associated with Upper Gastrointestinal bleeding

This study showed that 80% of patients with UGIB had no history of smoking and 8.9% and 3% of participants were former and current smokers respectively.

In this study nearly half (49.5%) of patient with UGIB in this study were occasional alcohol consumers, regular alcohol use was documented in 6.9% of patients.

Only 7/110 (6.9%) patients with UGIB were taking some form of anticoagulant or antiplatelet medications, of which four patients were taking warfarin, Three were on Aspirin and one patient was taking clopidogrel at the time they experienced the upper GI bleeding incident.

3% of patients were taking Non-Steroidal Anti Inflammatory drugs, namely ibuprofen and indomethacin during the UGIB incident.

Prior History of liver disease and PUD was documented in 24(23.8%) and 6(5.9%) of patients respectively.

Table 2: Frequency of risk factors of patients with UGIB seen at TASH between December 2018 to December 2019 G.C (N=101)

Risk factors		Frequency	Percent
Smoking History	Never	81	80.2
	Former	9	8.9
	Current	3	3.0
	Unknown	8	7.9
Alcohol Intake	Regular Alcoholic	7	6.9
	Occasional	50	49.5
	Ex-Alcoholic	3	3.0
	Never Drunk Alcohol	41	40.6
Antiplatelet Medications	Aspirin	3	3.0
	Clopidogrel	1	1.0
Anticoagulant	Warfarin	4	4.0
NSAIDs	Ibuprofen	1	1.0
	Indomethacin	2	2.0
Prior Liver Disease		24	23.8
Prior PUD		6	5.9

The most common clinical symptom at presentation identified in this study was bloody vomiting. Hematemesis was the only documented presenting symptom in 41.6%, while 32.7% complained both hematemesis and melena, with the remaining 18.8% reported only melena as their chief complaints. In 7 (6.9%) patients the presentation was for anemia.

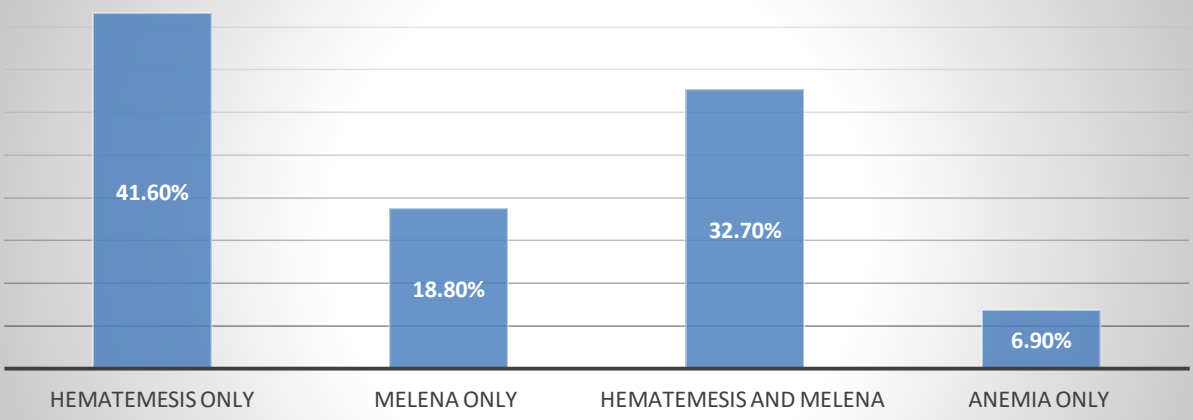

Figure 3:Major Presenting clinical symptom of Upper gastrointestinal bleeding patients between December 2018 to December 2019 (N=101)

The most frequent medical comorbidities identified were hypertension (9.9%), diabetes (9.9%), Chronic kidney disease (5.9%), Other less commonly observed conditions were stroke (3%), HIV(3%) and Ischemic heart disease in 1% of patients treated for upper gastrointestinal bleeding.

Table 3: Comorbidities in patients with UGIB seen at TASH between December 2018 to December 2019 (N=101)

Comorbidities		Frequency	Percent
Hypertension		10	9.9
Diabetes Mellitus		10	9.9
IHD		1	1.0
Stroke	Ischemic	3	3.0
	Hemorrhagic	1	1.0
CKD		6	5.9

HIV	3	3.0
Asthma	1	1

7.3 Laboratory Parameters

Majority of patients with upper GI bleeding had their white blood cell count in the normal range, 65.3% in the range of 4000 to 11,000, 15.8% had values <4000 and 18.8% had values above the normal range(>11,000). Significant proportion (27.7%) of patients with UGIB in this study had documented severe anemia (Hemoglobin <7g/dl). 46% in the range of 7 to 12g/dl and 25% had hemoglobin concentration above 12gm/dl. MCV was below 80 in 29 patients. Platelet concentration was largely preserved, 52% had their platelet concentration in the range of 150,000 to 450,000 cells/microliter and 34 patients (33.7%) had platelet count below 150,000 cells/microliter.

The serum ALT and AST concentrations were in the elevated in about 20 patients (19.8%) and 26 patients (25.7%) patients respectively. Liver function parameters including total bilirubin, serum albumin and coagulation profile as assessed by Prothrombin time showed that, from 72 patients with total bilirubin determination 16 patients had elevated bilirubin, and from 52 patients with albumin determination 22 patients had low albumin, PT was prolonged in 32 of the 67 patients with PT determination.

Among patients with documented hepatitis viral marker status, 12.9% had hepatitis B and 2% had Hepatitis C virus infection.

Majority had normal serum creatinine concentration, 73 of the 91 patients with documented serum creatinine determination had normal results.

Table 4: Laboratory profiles of patients with UGIB seen at TASH between December 2018 to December 2019 (N=101)

Laboratory Parameters		Frequency	Percent
WBC	< 4000	16	15.8
	4000-11,000	66	65.3
	> 11,000	19	18.8
Hemoglobin	< 7 g/dl	28	**27.7**
	7-12 g/dl	47	46.5
	>12 g/dl	26	25.7
MCV	<80 fl	29	**28.7**
	80-100 fl	66	65.3
	>100 fl	6	5.9
Platelet	<150,000	34	33.7
	150,000-450,000	52	51.5
	>450,000	15	14.9
ALT	Elevated	20	19.8
AST	Elevated	26	25.7
Total bilirubin	Elevated	16	15.8
Albumin	Low	22	21.8
PT	Prolonged	32	31.7
Creatinine	Elevated	18	17.8
HBsAg	Positive	13	12.9
HCV Ab	Positive	2	2

7.4 Endoscopic Findings

The commonest endoscopic finding among patients with Upper GI Bleeding in this study was esophageal varices, documented in 33.7% of patients. The second commonest finding was duodenal ulcer, documented in 19.8% of patients with upper GI bleeding. Normal EGD finding was documented in 13 (12.9%) of patients. From those patients having esophageal varices those

patients having age less than 40 account for 55.9%, while 50% of patients having DU belong to age between 40 and 60.

The other causes of upper GI bleeding as documented by upper GI endoscopy were, gastric ulcer in 4 patients, Gastro esophageal varices in another 4 patients, portal hypertensive gastropathy in 6 patients, esophageal cancer in 1 patient, nonspecific gastropathy in 13 patients, duodenitis in 2 patients, gastritis in 3 patients, and 1 patient in each were diagnosed to have esophageal polyp, erosive esophagitis, esophageal ulcer, duodenal cancer, and GIST.

Table 5: Endoscopic findings of patients with UGIB bleeding seen at TASH between December 2018 to December 2019 (N=101)

Endoscopic Findings		Frequency	Percent
Gastric Ulcer	Forrest III	2	2.0
	Forrest class not documented	2	2.0
Duodenal Ulcer	Forrest IA	1	1.0
	Forrest 1B	2	2.0
	Forrest IIB	1	1.0
	Forrest III	9	8.9
	Forrest class not documented	7	6.9
Esophageal Varices	Grade 2	1	1.0
	Grade 3	33	32.7
Gastro esophageal varices	GOV1	1	1.0
	GOV2	1	1.0
	GOV 1 and 2	2	2.0
PHG	Yes	6	5.9
Esophageal Cancer	Yes	1	1.0
Other	Normal EGD	13	12.9
	Other Findings	23	22.7

7.5 Abdominal Ultrasound

Features of chronic liver disease were documented on abdominal ultrasound in 27(26.7%) patients with upper GI bleeding in this study. Splenomegaly was also common, documented in 37 (36.6%) patients. Periportal fibrosis was found in 8 patients.

Table 6: Abdominal ultrasound findings of patients with UGIB bleeding seen at TASH between December 2018 to December 2019 (N=100)

Abdominal Ultrasound findings	Frequency	Percentage
Cirrhotic liver	27	27%
Periportal fibrosis	8	8%
Splenomegaly	37	37%

7.6 Management of upper gastrointestinal bleeding

70 patients (69.3%) of patients with upper GI bleeding were only managed medically without being given endoscopic treatment.

Endoscopic management of upper GI bleeding was done in 31 (30%) patients, the commonest being endoscopic band ligation done for 26 (25.7%) patients, followed by epinephrine injection and sclerotherapy done for 2 patients each. Thermal therapy was done for only1 patient. Endoscopic management was not given for significant number of patients with upper GI bleeding due to lack of facility, most of them needed banding, 12 (11.9%) patients had endoscopic finding with indication for endoscopic management but were unable to get the facility due to unavailability and the remaining 58 patients don't have indication to undergo Endoscopic intervention.

48 patients had endoscopy done after hospital admission and 53 patient got endoscopy as an outpatient. From the 48 patients, 30/48 (62.5%) of patients get endoscopy after 24 hours of

admission, 13/48(27%) patients with in 12 to 24 hours and 5/48(10.5%) patients in less than 12 hour after admission.

Red Blood Cell Transfusion was required in 32 (31.7%) patients during their bleeding episode and the mean red blood cell transfusion was **3.13±1.07 units**. Platelet concentrate transfusion was required only in 1 patient. A total of 3 patients were also transfused with FFP.
H.Pylori eradication therapy was given to 12 patients with upper GI bleeding after being tested positive for H.Pylori stool antigen.

Table 7: Management of patients with UGIB bleeding seen at TASH between December 2018 to December 2019 (N=101)

Patient Management		Frequency	Percent
Medical management only	Yes	70	69.3
Endoscopic Management	Epinephrine injection	2	2.0
	Sclerotherapy	2	2.0
	Band ligation	26	25.7
	Heat therapy	1	1.0
Timing of Endoscopy (48 admitted patients)	< 12 hours	5	10.4
	Between 12 and 24 hours	13	27.1
	> 24 hours	30	62.5

7.7 Outcomes of patients managed for UGIB during the study period

Among 31 patients who underwent Endoscopic management of upper GI Bleeding 24 patients were actively bleeding and other 7 patients weren't bleeding actively. Out of 24 patients who were bleeding actively, control of bleeding was achieved in 20 (83.3%) patients. 3 patients underwent intubation, and 1 patient had documented uncontrolled bleeding after endoscopic management.

Of patients admitted to the ward with upper GI bleeding 25 (52.1%) patients had medical complications during their hospital stay, including AKI in 12 patients, Pneumonia in 5 patients, Hepatic encephalopathy in 4 patients, rebleeding in 2 patients and 1 patient had Spontaneous bacterial peritonitis. There was 1 in hospital mortality documented, the patient with uncontrolled bleeding.

Among 48 patients admitted to the wards, 30 (62.5%) patients stayed for 3 to 7 days, 16 (33.3%) stayed more than 7 days and 2 patients stayed for less than 3 days.
Among the admitted patients, all were discharged improved except the one death mentioned.

Table 8: Management outcome of patients with UGIB bleeding seen at TASH between December 2018 to December 2019 (N=48)

Management Outcome		Frequency	Percent
Length of Hospital Stay	< 3 days	2	4.2
	Between 3 and 7 days	30	62.5
	> 7 days	16	33.3
Outcome during endoscopic treatment for those actively bleeding lesions	Controlled bleeding	20	83.3
	Continued bleeding	1	4.2
	Required intubation	3	12.5
Medical Complications	AKI	12	25
	Pneumonia	5	10.4
	Hepatic encephalopathy	4	8.3
	Rebleeding	2	4.2
	SBP	1	2.1
	Death	1	2.1

7.8 Factors affecting Management outcome

Having medical comorbidities increases length of hospital stay among patients who admitted for Upper GI bleeding with P-value of **0.02** and the risk of patients being staying in the wards become borderline significant with P-value of **0.06** when comorbidities are adjusted to age, sex, and other risk factors of UGIB.

Other Factors like having endoscopic diagnosis of Esophageal Varices, Gastric ulcer or duodenal ulcer didn't affect hospital stay significantly.

Patients who get the upper GI endoscopy done in the first 24 hours of admission stayed in the hospital shorter than patients who get the service after 24 hours of admission. The difference was statistically significant to stay in the hospital for more than 7 days. (P value of **0.01**) but when it's adjusted it becomes borderline significant with P value of **0.06**.

There is no significant difference in terms of hospital stay between patients who were given endoscopic management or not.
Whether the patient's hemoglobin concentration at the time of admission is <7 or higher didn't affect the length of hospital stay significantly.

In This study, Most of the parameters studied like medical history of alcohol use, smoking history, use of antiplatelet or anticoagulant, laboratory parameters like degree of anemia, or endoscopic findings like the presence or absence of esophageal varices didn't significantly affects the probability of patients with upper GI bleeding to develop medical complications like pneumonia, Acute kidney injury, Hepatic encephalopathy and Spontaneous bacterial peritonitis during their hospital stay. The only significantly factor was length of stay, with those patients who stayed in the wards less than 7 days have 91% less risk of developing any of the above mentioned complications with P-Value being **0.001**. Length of stay is also significantly associated with in hospital complications even after adjustment with P-value of **0.003.**

Table 9 : Bivariate logistic regression showing the association between the independent variable length of stay and other variables in patients with UGIB seen at TASH between December 2018 to December 2019 (N=48)

Variable		Frequency(N=48)		COR(95%,CI)	P-Value
		< 7 days	>7 days		
Gender	Male	28(71.8)	11(28.2%)	3.182(0.718-14.094)	0.12
	Female	4(44.4)	5(55.6%)		
Comorbidity		4(36.7%)	7(63.6%)	5.444(1.290-22.976	**0.02**
Smoking History		5(50%)	5(50%)	2.455(0.591-10.197)	0.18
Alcohol History		4(100%)	0	1.571(1.257-1.965)	0.18
Antiplatelet Use		1(25%)	3(75%)	7.154(0.68-75.314)	0.1
Anticoagulant Use		2(50%)	2(50%)	2.143(0.273-16.814)	0.4
NSAID use		1(100%)	0	0.66(0.537-0.81)	0.66
Endoscopic management		15(68.2%)	7(31.8%)	1.134(0.339-3.794)	
Timing of Endoscopy	<24 Hours	16(88.9%)	2(11.1%)	7(1.364-35.929)	**0.01**
	>24 Hours	16(53.3%)	14(46.7%)		
Presence of Varices on EGD present		14(66.7%)	7(33.3%)	1(0.298-3.353)	0.62

Table 10: Multivariate logistic regression showing the association between the independent variable length of stay and other variables in patients with UGIB seen at TASH between December 2018 to December 2019 (N=48)

Variable		Frequency(N=48)		COR(95%,CI)	AOR (95%,CI)	P-Value
		< 7 days	>7 days			
Gender	Male	28(71.8)	11(28.2%)	3.182(0.718-14.094)	4.9(0.566-32.652)	0.15
	Female	4(44.4)	5(55.6%)			
Comorbidity		4(36.7%)	7(63.6%)	5.444(1.290-22.976	7.922(0.92-68.186)	**0.06**
Smoking History		5(50%)	5(50%)	2.455(0.591-10.197)	8.8(0.402-192.7)	0.16
Antiplatelet Use		1(25%)	3(75%)	7.154(0.68-75.314)	2.557(0.82-79.896)	0.6
Anticoagulant Use		2(50%)	2(50%)	2.143(0.273-16.814)	2.26(0.156-32.746)	0.55
Endoscopic management		15(68.2%)	7(31.8%)	1.134(0.339-3.794)	0.22(0.015-3.337)	**0.27**
Timing of Endoscopy	<24 Hours	16(88.9%)	2(11.1%)	7(1.364-35.929)	7.92(0.92-68.186)	**0.06**
	>24 Hours	16(53.3%)	14(46.7%)			
Presence of Varices on EGD present		14(66.7%)	7(33.3%)	1(0.298-3.353)	0.411(0.38-4.334)	0.46

Table 11: Bivariate logistic regression showing the association between the independent variable any in hospital medical complications related to UGIB and other variables in patients with UGIB seen at TASH between December 2018 to December 2019 (N=48)

Variable		**Frequency (N=48)**	**COR (CI, 95%)**	**P-Value**
Gender	Male	18(46.2%)	1.07(0.249-4.603)	0.6
	Female	4(44.4%)		
Comorbidity		6(54.5%)	0.635(0.164-2.457)	0.38

Smoking History		4(40%)	1.35(0.328-5.565)	0.47
Antiplatelet Use		2(50%)	0.833(0.108-6.459)	0.62
Anticoagulant Use		3(75%)	0.253(0.24-2.631)	0.25
Endoscopic management		9(40.9%)	0.692(0.22-2.178)	0.37
Timing of Endoscopy	<24 Hours	6(33.3%)	0.438(0.13-1.474)	0.14
	>24 Hours	16(53.3%)		
Length of stay	<7days	9(28.1%)	0.09(0.021-0.394)	**0.001**
	>7 days	13(81.3%)		

Table 12: Multivariate logistic regression showing the association between the independent variable any in hospital medical complications related to UGIB and other variables in patients with UGIB seen at TASH between December 2018 to December 2019 (N=48)

Variable		**Frequency (N=48)**	**COR (CI, 95%)**	**AOR (CI, 95%)**	**P-Value**
Gender	Male	18(46.2%)	1.07(0.249-4.603)	8.779(0.436-176)	0.156
	Female	4(44.4%)			
Comorbidity		6(54.5%)	0.635(0.164-2.457)	3.209(0.19-54.323)	0.42
Smoking History		4(40%)	1.35(0.328-5.565)	16.271(0.54-490)	0.1
Antiplatelet Use		2(50%)	0.833(0.108-6.459)	1.44(0.51-40.9)	0.89
Anticoagulant Use		3(75%)	0.253(0.24-2.631)	0.168(0.002-15.89)	0.45
Timing of Endoscopy	<24 Hours	6(33.3%)	0.438(0.13-1.474)	2.129(0.287-15.782)	0.46
	>24 Hours	16(53.3%)			
Length of stay	<7 days	9(28.1%)	0.09(0.021-0.394)	0.013(0.001-0.233)	**0.003**
	>7 days				

8. Discussion

This study will be one of the few studies conducted on etiology, clinical profile and management outcomes of patients with UGIB in Ethiopia. As with other previous studies male predominance is seen in this study with male to female ratio of 2.6:1**(18)**. Majority of patient in this study belong to age less than 40 years which is comparable with a study conducted in Tanzania with a median age of 39 years **(16).** The most common presenting clinical feature in this study was Hematemesis (41.6) followed by hematemesis and melena (32.7%), melena only (18.8%), and anemia only seen in 6.9% of patients, this clinical manifestation is consistent with prospective study done in Sirilanka **(12).**

Regarding risk factor for UGIB in this study history of smoking was seen in 11 patients and out of these 3 were active smokers, history of alcohol intake was positive in 60 patients but majority of patients has occasional alcohol intake and only 7 being regular drinkers, antiplatelet and anticoagulant use is seen in 4 patients in each group respectively, and NSAID use is documented in 3 patients only.
In most of previous studies the most common associated risk factors were smoking, alcohol intake and use of NSAIDs, in this study smoking and alcohol intake are also seen as major risk factors but use of NSAIDs are only seen in small a number of patients. **(5).**

The most common comorbidities seen in this study were hypertension 10 (9.9%), Diabetes 10 (9.9%), Prior PUD (5.9%), Stroke (4%) and CKD seen in 6 (5.9%) of patients. This is comparable with a prospective study which is done in Enam Hospital, which also shows hypertension and diabetes as a major risk factors **(17).**

Regarding laboratory abnormalities seen in this study low hemoglobin less than 7 g/dl was seen in 28 (27.7%) of patients, MCV was less than 80 fl in 29(28.7%) of patients and more than 100 fl in 6(5.9%) of patients and the remaining had MCV in normal range, Platelet count was less than 150,000 in 34 (33.7%) of patients and more than 450,000 in 15(14.9%) of patients and the remaining in the normal range. ALT was elevated in 20 (19.8%), AST elevated in 26(25.7%), total bilirubin elevated in 16(15.8%) of patients respectively. Prolonged PT was seen in 32

patents (31.7%), low albumin in 22(21.8%), elevated creatinine in 18 patients (6 patients had CKD and 12 patients developed AKI). HBsAg and HCV Ab tests were positive in 13 and 2 patients respectively.

The commonest endoscopic finding seen in this study was esophageal varices which is seen in 34 (33.7%) of patients followed by duodenal ulcer seen in 20 (19.8%) of patients. Most of the patients had grade 3 esophageal varices from the esophageal varices group and Forrest class III DU from the duodenal ulcer group. Prior endoscopic profile study in Ethiopia showed dominance of DU in 45.6% of patients followed by esophageal varices **(7).** But finding of this study is comparable with other study conducted in French general hospitals **(8).**

Regarding management of patients out of 101 patients enrolled in this study, 70 patients were only managed medically and the rest 31 patients got endoscopic treatment for their bleeding. Out of the 31 patient who were managed with endoscopic treatment with banding was given for 26 patients, heat therapy for 1 patient and epinephrine 2 patients and sclerotherapy also given for 2 patients. Only 12 patients had indication for treatment and treatment wasn't given due to unavailability of materials and other 58 patients weren't having indication to proceed with therapy.

Ultrasound findings of cirrhosis was seen in 27 patients, splenomegaly seen in 37 patients and Periportal fibrosis was documented in 8 patients in this study suggesting portal hypertension due to liver cirrhosis and hepatosplenic schistosomiasis are the commonest etiology of UGIB in our setup.

Regarding the timing of endoscopic management 30 patients had got endoscopy done after 24 hours of admission, 13 patients between 12 and 24 hours and 5 patients in less than 12 hours after admission. Those patients who got endoscopy done after 24 hours stayed for more than 7 days in the wards and also were at risk for in hospital medical complication.

Out of 48 patients who were admitted to the wards 30 patients stayed in the wards between 3 and 7 days and 16 patients for more than 7 days and the remaining 2 for less than 3 days while average length of stay was 7.71 (± 12.2) days in the Brazilian study **(21).**

Among 31 patients who underwent Endoscopic management of upper GI Bleeding, 24 patients were actively bleeding at the time of endoscopy was done while in the remaining 7 patients bleeding has already stopped spontaneously. Out of 24 patients who were bleeding actively, control of bleeding was successful in 20 (83.3%) patients. 3 patients undergo intubation, and 1 patient had documented uncontrolled bleeding after endoscopic management and he was managed with insertion of Blackmore tube and finally the patient died due to significant bleeding.

Compared with a study which is conducted in Brazilian hospital rate of controlled bleeding after endoscopy intervention were comparable while rate of rebleeding is less in this study 4.2% vs 9.2% in the Brazilian study. Red blood cell Transfusion was required in 32 (31.7%) patients during their bleeding episode, with the mean red cell transfusion being **3.13±1.07 units** per patient while on the Brazilian study blood transfusion requirement in unit of packed RBC transfusion averagely was 1.44(±1.99) per patient **(21).**

Of patients admitted to the ward with upper GI bleeding 25 (52.1%) patients were diagnosed to have medical complications during their hospital stay, AKI in 12 patients, Pneumonia in 5 patients, Hepatic encephalopathy in 4 patients, rebleeding in 2 patients and 1 patient had Spontaneous bacterial peritonitis. There was 1 in hospital mortality documented which is due to significant bleeding.

Comorbidity and timing of endoscopy had statistically significant association with length of hospital stay and length of stay in turn had statistically significant association with developing in hospital complications.

9. Conclusion

The commonest cause of upper GI bleeding in TASH during the study period were portal hypertension related etiologies followed by duodenal ulcer. For admitted patients requiring emergency endoscopic intervention, delay of intervention beyond 24 hours had statistically significant association with increased length of stay as well has in hospital complications.

10. Limitation of the study

This is a single centered hospital based retrospective study and results cannot be generalized to General population since patients that present to this hospital may not represent patients in the Country. Mortality outcome was not assessed in this study since it's difficult to get death charts from chart office.

11. Recommendation

We recommend this study be continued to multicenter prospective study with large sample size including survival analysis to know the exact epidemiology and outcome analysis.
We also recommend practitioners to calculate scorings of UGIB which predict mortality in routine practice which might help for future research.

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Annex:

QUESTIONNAIRE

This is a questionnaire which is prepared to undergo retrospective study on etiology, clinical profile and management outcomes of patients seen at TASH over a period of 1 year. The data will be collected from patient charts, medical recording system and HMIS

MRN/ICARE Number _____ DATE _____

Questionnaire Number _____

PART 1. SOCIODEMOGRAPHIC CHARACTERSTICS

101	Age	1.<40 2.40-60 3.>60	
102	Sex	1.Male 2.Female	
103	Address	1.Addis Ababa 2.Oromia 3.Amhara 4.SNNPR 5.Others(specify)_____	

PART 2. RISK FACTORS

201	Alcoholic	1.Regular Alcoholic 2.Occasional 3.Ex-alcoholic 4.Never	
202	Smoking	1.Never 2.Former 3.Current 4.Unknown	
203	Antiplatelets	1.Aspirin 2.Clopidogel	
204	Anticoagulants	1.Warfarin 2.Others (specify)_____	
205	NSAIDS	1.Diclofenac 2.Ibuprofen 3.Others(Specify)	
206	Hepatitis	1.Hepatitis B 2.Hepatitis C	
207	Helicobacter Pylori	1.Positive 2.Negative	
208	Prior Liver Disease	1.Yes 2.No	
209	Prior PUD	1.Yes 2.No	

PART 3. CLINICAL PRESENTATION

301	Hematemesis only	1.Yes 2.No	
302	Melena only	1.Yes 2.No	
303	Hematemesis and Melena	1.Yes 2.No	
304	Hematochezia only	1.Yes 2.No	
305	Anemia only	1.Yes 2.No	

PART 4. COMORBIDITIES

401	HTN	1.Yes 2.No	
402	DM	1.T1DM 2.T2DM 3.No Diabetes	
403	IHD	1.Yes 2.No	
404	Stroke	1.Ischemic stroke 2.Hemorragic stroke	
405	COPD	1.Yes 2.No	
406	Asthma	1.Yes 2.No	
407	CKD	1.Yes 2.No	

408	HIV		1.Yes 2.No	

PART 5. HEMATOLOGICAL AND LABORATORY PROFILES

501	CBC	WBC	A.<4000 B.4000-11,000 C.> 11,000	
		Hgb	A.< 7g/dl B.7-12g/dl C.> 12g/dl	
		MCV	A.< 80fl B.80-100fl C.>100fl	
		PLT	A.<150 B.150-450 C.>450	

502	LFT	ALT	1.Normal 2.Increased	
		AST	1.Normal 2.Increased	
		Total Bilirubin	1.Normal 2.Increased	
		PT	1.Normal 2.Prolonged	
		Albumin	1.Normal 2.Low	

503	Creatinine	1.Normal 2.Increased	

PART 6. ENDOSCOPIC PROFILES

601	Gastric Ulcer	1.Yes (Specify Forrest class)_____ 2.No	
602	Duodenal Ulcer	1.Yes (Specify Forrest class)_____ 2.No	
603	Esophageal varices	1.Yes 2.No	
604	Gastric Varices	1.Yes(Specify)_____ 2.No	
605	Gastro esophageal varices	1.Yes(specify)_____ 2.No	
606	Portal-hypertensive gastropathy	1.Yes 2.No	
607	Gastric Cancer	1.Yes 2.No	
608	Esophageal Cancer	1.Yes 2.No	
609	Mallory weiss tear	1.Yes 2.No	
610	GERD	1.Yes 2.No	
611	Others	1.Yes(Specify)_____ 2.No	

PART 7. ULTRASONOGRAPHIC FEATURES

701	Features of CLD	1.Yes 2.No	
702	Periportal Fibrosis	1.Yes 2.No	
703	Splenomegaly	1.Yes 2.No	

PART 8. MANAGEMENT

801	Conservative management (Medical management) only	1.Yes 2.No	
802	Endoscopic Treatment	1.Epinephrine Injection 2.Sclerotherapy 3.Band ligation 4.Heat therapy(Monopolar, Bipolar)	
803	Endoscopic treatment not given	1. Endoscopic treatment not given (clean based etc…) 2.Facility not available (band or sclerosant)	
804	Endoscopy done how many hours after admission	1.Less than 12 hours 2.Between 12 and 24 hours 3.greater than 24 hours	
805	Blood Transfusion	1.Red cell transfusion(quantify)_____ 2.Platelet transfusion(quantify)_____ 3.FFP transfusion(quantify)_____	
806	Helicobacter pylori therapy	1.Treated 2.Not treated	

PART 9. OUTCOMES

901	outcomes (at first endoscopic therapy)	1.Controlled bleeding 2.Continued bleeding 3.Required intubation	
902	During hospitalization	1.Rebleeding 2.AKI 3.Encephalopathy 4.Infection(specify)_____ 5.Death	
903	Length of stay	1.Less than 3 days 2.Between 3 and 7 days 3.More than 7 days	
904	Discharged Improved	1.Yes 2.No	