

The Etiology and Outcome of Upper Gastrointestinal Bleeding in Patients Presenting to Tertiary Care Hospital, Karachi

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ABSTRACT

Objective: The aim of this study was to determine the causative factors that lead to bleeding in upper gastrointestinal tract and assess the outcomes after endoscopy.

Methods: this study was conducted at the Department of Gastroenterology & Hepatology, JPMC, Karachi using a non-probability sampling technique and cross-sectional study design for the period of one year from October 2020 to September, 2021. Adult patients of age between 18 years to 60 years of both genders, presented either with upper GI bleeding were enrolled in this study. Baseline and clinical characteristics were collected in a structured questionnaire. After enrollment of patients, lower upper gastrointestinal and upper gastrointestinal endoscopy were performed to establish the diagnosis and source of bleeding and final analysis was performed using SPSS v. 23.

Results: Five thirty-six patients with UGIB were recruited for final analysis and among them most common were males and accounted for 58.0% (n = 311) Large esophageal varices were observed more prevalent cause of UGIB (57.4%, n = 308). Recurrent bleeding in 17 (5.6%) patients were observed under ≤50 years of age while 20 (8.6%) were of >50 years of age with a significant association between them (p= 0.028). Moreover, 02 (0.7%) died within 30 days under ≤50 years of age while 36 (15.5%) deaths were seen for those who were >50 years of age with a significant association (p< 0.001).

Conclusion: In our study, we have observed that irrespective of age groups and gender, UGIB was most commonly caused by esophageal varices. Males were comparatively more prevalent. Our study also proves that risk of re-bleeding occurs as the age increasing along with higher short-term mortality.

Keywords: Esophageal varices, UGIB, peptic ulcer, re-bleeding, mortality rate

INTRODUCTION

Upper gastrointestinal bleeding is the most common presenting complaint faced in the emergency department of gastroenterology and hepatology all over the world but the underlying etiological factors can be varied depending upon the prevalent causes in that region. Like in Pakistan the most common cause of upper GI bleed is the presence of viral hepatitis and peptic ulcer disease.¹ Upper GI bleeding is approximately twice common than lower GI bleeding.² In the West, the frequency of hospitalization for acute UGIB is 50-59 per 100,000 people annually.³ Mortality rate of UGIB is found to be 2-10%.⁴ based on the recent guidelines, patients who presents with UGIB are classified as variceal-bleed vs. non-variceal bleed, for the reason that these two have different course of disease severity, management, and patient's outcome. Worldwide, irrespective of age groups, peptic ulcer disease and esophageal varices are the main causes of upper GI bleeding. Other non-variceal causes include esophagitis, gastritis, Mallory Weiss tears, malignancies and Dieulafoy lesions.⁵ The epidemiology of peptic ulcer is changing. Peptic ulcer is still common cause of UGIB.⁵ The role of NSAIDs i.e. Aspirin in GI bleeding is well recognized and many studies has mentioned chronic use of it is linked to an increased risk of bleeding including UGI and cerebrovascular particular in older age group.⁶ Fundamental symptoms of UGIB involves the epigastric pain, coffee ground vomitus, blood in vomiting and black tarry stools. Patients should be inquired about the use of medicines. Low dose aspirin is associated with UGIB and LGIB, especially with comorbid.^{7,8,9} Any patient who present with upper or lower GI bleed should be considered and treated as medical emergency and because any delay in treatment is associated with increased risk of mortality. The gold standard procedure is to perform immediate upper GI endoscopy to look for the cause of bleeding and plan management accordingly.¹⁰ Esophagogastroduodenoscopy (EGD) is the gold standard for the diagnosis, evaluation and management of UGIB.¹¹ The Forrest classification is employed to grade the peptic ulcer that is noticed on endoscopy. Anticoagulants do not induce ulcer bleeding, but they raise the risk of bleeding from sites where there have been mucosal breaks. History of ulcer bleeding is linked to an increased

risk for bleeding.¹² Multiple studies have been conducted internationally but there is little data locally, for the assessment of the causes and its association with age. Many researchers have illustrated various etiologies of UGIB in Pakistan. In a previously conducted study, the burden of esophageal varices extends up to 50% among all causes of UGIB.¹³ On the other hand, peptic ulcer disease was reported as common etiology in other studies.¹⁴ Therefore, the objective of this study was to assess the frequency, cause of upper gastrointestinal bleeding and the outcomes which could reduce the mortality and morbidity related to the disease by timely intervention.

MATERIAL AND METHODS

A cross sectional prospective study was conducted using convenience sampling technique in the Department of Gastroenterology & Hepatology, Jinnah Post-graduate Medical Center, Karachi. The duration of the study was one year started from 1st October 2020 to 30th September 2021. The ethical approval was taken from the Institutional Review Board (IRB) of Jinnah Post graduate Medical Centre. All the patients who presented in the emergency department of Gastroenterology & hepatology with upper GI bleeding, blood in stools, or bloody vomiting, having age more than 18 years of both genders were included in this study. Patient who had hemoptysis and not fit for endoscopy because of contraindications such as acute decompensated heart failure, chronic obstructive pulmonary disease, unstable hemodynamics, and patients unable to lie down for the procedure were excluded from the study. All patients presented with UGIB underwent esophagogastroduodenoscopy (EGD) to find out the cause of UGIB. All demographic data, comorbidities, drugs, endoscopic findings and mortality within 30 days, were recorded in the proforma. Patients were called for follow up in OPD after one and four weeks of discharge. Written consent was taken before EGD. Olympus GI-190 adult endoscope was used for the procedure. The primary result was 30-day mortality and re-bleeding. Statistical analysis was done by using SPSS version 23. Categorical variables such as gender, complications, and mortality; were reported as frequency with percentages and for quantitative variables mean±SD were

reported. We used in-dependent t-test, X²-square test, and fisher's exact test where appropriate and a p value <0.05 taken as statistically significant.

RESULTS

A total of 536 patients with UGIB were enrolled for the study in which 311 (58.0%) were males and 225 (42.0%) were females. Mean age was 48.96±13.66 years. The most common co-morbid among these patients was diabetes i.e. 48 (9%), followed by hypertension 33 (6.2%). Some patients were addicted to Pan, smoking and alcohol, 13 (2.4%), 17 (3.2%) and 7 (1.3%) respectively. Among drugs 13 (2.4%) patients were taking non-steroidal anti-inflammatory drugs (NSAIDS), 23 (4.3%) were using anti-platelets drugs. Among viral hepatitis 320 (59.7%) patients had hepatitis C and 61 (11.4%) had hepatitis B. All demographics of patients are shown in Table I. In younger group of patients (age ≤50 years), the most common symptom on presentation was hematemesis (95.0%, n = 288) and melena (5.0%, n = 15) vs. older age group (age >50 years) (93.6%, n = 218) and 15 (5.0%), respectively, p >0.458.

Most common cause of UGIB in in both age groups was presence of large esophageal varices (57.8%, n = 175) and (57.5%, n = 133). Also, there is an insignificant association was observed in relation to Forrest class-III, presence of mass & polyp, and gastric varices, esophagitis among both age groups, p >0.05. Table II.

In our study we have also observed that presence of recurrent bleeding was significantly less common in younger age group as compare to older ones, (5.6%, n = 17) vs. 8.6%, n = 20), p 0.028. Also, short-term mortality (28 days) was significantly more prevalent in older age group patients as compare to younger ones, (15.5%, n =36) vs. 0.7%, n = 2), p <0.001). Table III.

Table 1: Demographic profile of Acute upper gastrointestinal bleeding (UGIB) patients(N=536).

Variable	Mean ± SD n(%)
Age (years)	48.96±13.66
Gender	
Male	311(58.0)
Female	225(42.0)
Occupation	
Labour	23(4.3)
Shopkeeper	18(3.4)
Office worker	4(0.7)
Paramedics	1(0.2)
Student	17(3.2)
Housewife	216(40.3)
Unknown	257(47.9)
Co-morbid	
DM	48(9.0)
HTN	33(6.2)
IHD	14(2.6)
CKD	3(0.6)
None	438(81.7)
Addiction	
Pan	13(2.4)
Beetle nuts/Gutka	6(1.1)
Smoking	17(3.2)
IV drugs	1(0.2)
Alcohol	7(1.3)
None	492 (93)
Drugs	
NSAIDS	13(2.4)
Anti-platelets	23(4.3)
Herbal	2(0.4)
Homeopathic medicine	2(0.4)
None	496(92.5)
Hepatitis	
Hepatitis B	61(11.4)
Hepatitis C	320(59.7)
Hepatitis D	8(1.5)
None	147(27.4)
Co-infection	
Hepatitis B and C	4(0.7)
Hepatitis B and D	14(2.6)
None	518(96.6)

Table-2: Association of etiology and frequency according to age.

Variable	<50 n(%)	> 50 n(%)	p-value
Esophageal	32(10.6)	31(13.3)	0.595

Varices	Large	175(57.8)	133(57.1)	0.762	
	None	96(31.7)	69(29.6)		
Gastric Varices	GOV I	2(0.7)	2(0.9)		
	GOV II	3(1.0)	3(1.3)		
	IGV I	21(6.9)	13(5.6)		
	IGV II	0(0.0)	1(0.4)		
	None	277(91.4)	214(91.8)		
Gastropathy	Mild	41(13.5)	35(15.0)		0.874
	Severe	186(61.4)	142(60.9)		
	None	76(25.1)	56(24.0)		
Peptic ulcer	FC 1b	0(0.0)	2(0.9)	0.066	
	FC 1a	0(0.0)	3(1.3)		
	FC 1b	6(2.0)	1(0.4)		
	FC 1c	1(0.3)	2(0.9)		
	FC 1d	31(10.2)	29(12.4)		
	None	265(87.5)	196(84.1)		
Erythema	Mild	19(6.3)	15(6.4)	0.840	
	Moderate	12(4.0)	8(3.4)		
	Severe	55(18.2)	36(15.5)		
	None	217(71.6)	174(74.7)		
Mass	Esophagus	4(1.3)	2(0.9)	0.573	
	Stomach	1(0.3)	3(1.3)		
	Duodenal	2(0.7)	1(0.4)		
	None	296(97.7)	227(97.4)		
Esophagitis	LA grade A	4(1.3)	2(0.9)	0.412	
	LA grade B	3(1.0)	3(1.3)		
	LA grade C	3(1.0)	7(3.0)		
	La grade D	1(0.3)	2(0.9)		
	None	292(96.4)	219(94.0)		
Polyp	Gastric	2(0.7)	1(0.4)	0.255	
	Duodenal	0(0.0)	2(0.9)		
	None	301(99.3)	230(98.7)		

Table 3: Association of age with outcomes of endoscopy

Variable	<50 n(%)	> 50 n(%)	p-value	
Bleeding	Re-bleeding 5-7 days	1(0.3)	6(2.6)	0.028
	Recurrent bleeding	17(5.6)	20(8.6)	
	No bleeding	285(94.0)	207(88.8)	
Mortality	30 days	2(0.7)	36(15.5)	<0.001
	Loss to follow up	3(1.0)	2(0.9)	
	Alive	298(98.3)	195(83.7)	

DISCUSSION

The present study demonstrated the frequency and risk factors that are responsible to develop bleeding in upper gastrointestinal tract and assessed the outcomes of the gastrointestinal bleeding after therapy. In one study, about 150 subjects with UGIB were assessed to find out the cause of UGIB through various demographic statistics. It was observed that the males were largely affected than females with the ratio of 2:1.¹⁵

The present study findings were consistent with the above mentioned study and reported that males 311 (58.0%) were more dominant than females 225 (42.0%). This gender wise difference could be due to the higher number of patients affected by the esophageal varices that is more commonly found in patients ≤50 years of age because of high intake of alcohol resulting in liver disease, unlikely to our study in which only few 07 (1.3%) were alcoholics while most had chronic liver disease 381 (71.1%) due to viral hepatitis. Multiple previously national and international studies have observed higher prevalence of males as compared to females. This could be due to multiple reasons such as in Pakistan women tend to hide their disease's symptoms and are less prone to barbers and hospital visits as compared to males. On the other hands, in western world alcoholism is the main cause of UGIB and is more common in males than females.¹⁶ In one of the study in Pakistan, male gender was dominant among patients with upper GI bleed.¹⁷

The mean age in one of the study was observed to be 57.1±18 years, where as in our study, it was 48.96±13.66 years, which is nearly consistent with the above cited study.¹⁸

Besides variceal UGIB, chronic use of NSAIDS is the main nonvariceal cause of UGIB in western world and is observed in a

study conducted in china. Their findings are in favor of the findings shown in a Danish study in which more than 60% of the patients with non-variceal bleed presented with UGIB.^{19,20} Findings from our study was contradictory with the above-mentioned studies as in our findings only 13 (2.4%) patients used NSAID and 23 (4.3%) patients used antiplatelet. Therefore, in our study use of NSAID was not the common cause of UGIB. Furthermore, this difference might be because of the increased use of over-the-counter proton pump inhibitors.²¹ There are other studies conducted in Pakistan, depicted various etiologies of upper GI bleed; few illustrations include esophageal varices as main etiology. In a local study conducted in sukkur region has observed that more than 50% of patients with variceal bleed were males and among them HCV was the most common cause, thus patients who had esophageal varices on endoscopy must have evaluation with viral serology.²² Another study from Lahore shows that variceal bleeding is more prevalent than any other cause, reflecting the underlying high rate of chronic liver disease in our population.²³

Our study was in agreement with the above studies and reported that most common etiological factor of gastrointestinal bleeding was esophageal varices 175 (57.8%) under ≤50 years of age while 133 (57.1%) were of >50 years of age but there was an insignificant association in terms of age group $p=0.874$ and $p=0.595$, respectively. This finding might be because of high prevalence of hepatitis B and C in our population.²⁴

In one study, mortality rate was found non-significantly different below 60 years (9.33%) as compared to those with above 60 years (13.69%), ($p > 0.05$).²⁵ As far as our study is concerned, it revealed that mortality rate was higher within 30 days 36 (15.5%) in >50 years of age as compared to two (0.7%) in ≤50 years of age with a significant association between them ($p < 0.001$). This disparity of mortality is might be due to comorbidities in older age group.

The qualitative approach and large sample size has assured that we have assessed extensive range of patients with UGIB. However, the study might not be immune from selection and practice bias. Considering the observations of our study and to what extend these findings will vary with different therapies of patients with UGIB would be revealing to discover more facts about the disease.

In this study several limitations are encountered. Most important limitation was recruitment of patients was from a single but tertiary care hospital. Also, patients who cannot afford treatment in private hospitals are more likely to visit government hospital. That is why the population is mostly of those patients who are residents of urban areas and with low education level. A larger scale study should be conducted on extensive level to validate the findings of our study.

CONCLUSION

In our study, we have observed that irrespective of age groups and gender, UGIB was most commonly caused by esophageal varices. Males were comparatively more prevalent. Our study also proves that risk of re-bleeding occurs as the age increasing along with higher short-term mortality.

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