Original Article

DOI: 10.7860/JCDR/2021/46047.14617

Internal Medicine Section

Clinical and Endoscopic Profile of Upper Gastrointestinal Bleed: A Cross-sectional Study from a Tertiary Care Hospital in Southern India

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ABSTRACT

Introduction: Acute Upper Gastrointestinal (UGI) bleed is a common potentially life threatening emergency. The aetiological profile of bleed and prognosis varies according to geographical region and availability of endoscopic facilities.

Aim: To determine the clinical and endoscopic profile of UGI bleed, risk factors and prognosis in the patients.

Materials and Methods: This was a cross-sectional study conducted over a period of 12 months at a tertiary care centre in Southern India. Patients admitted with history of hematemesis and melena, satisfying the inclusion criteria was taken consecutively. Clinical and endoscopic profile were noted and followed-up for six weeks. Statistical analysis was performed using chi-square test for qualitative variables and independent t-test for quantitative variables. Significance level was fixed as p-value of <0.05.

Results: A total of 138 patients were studied in this period. The male to female ratio in the study was 3.5:1. The mean age was 53.5±13.17 years. The most common clinical presentation was hematemesis in 57 patients (41.3%) followed by haematemesis and melena in 46 patients (33.3%). The most common cause on endoscopy was portal hypertension-related oesophageal and gastric varices (51.4%) followed by antral gastritis (15.2%). The cause of UGI bleeding could not be identified in 5.1% in which the endoscopy was normal. Haemogram, platelet count and serum albumin were significantly lower in variceal bleed group, compared to non-variceal group. Eleven patients succumbed to death secondary to UGI bleed.

Conclusion: The most common causes of UGI bleed are portal hypertension related gastric and oesophageal varices. The in-hospital mortality in the study was 7.9%.

Keywords: Hematemesis, Portal hypertension, Prognosis, Varices

INTRODUCTION

Acute UGI bleed is a common potentially life threatening medical emergency. Bleeding from the UGI tract is four times more common than lower gastrointestinal tract and remains a major cause of morbidity and mortality, accounting for up to 6-8% of hospital admissions [1-3]. The yearly prevalence of UGI bleed is 170 cases per 100,000, whereas its incidence varies from 50-150 per year [3,4]. The aetiology of UGI bleed differs throughout the world. The most common cause of UGI bleed in Asians is oesophageal varices, as compared to peptic ulcer in Western countries [3,4]. The main sources of non-variceal bleeding are peptic ulcers, oesophagitis, drug induced mucosal damage, vascular anomalies, traumatic and postoperative lesions, and tumours [3-6]. Variceal UGI bleed is caused by the sequelae of portal hypertension such as varices of the oesophagus, stomach, duodenum, and portal hypertensive gastropathy [6,7].

Patients with UGI bleed require early risk assessment, resuscitation, identification and treating the bleeding source [8]. Endoscopy and endotherapy may be required to achieve haemostasis or surgery in cases with severe bleeding [8]. Bleeding is self limited in 80% of patients with UGI bleed, even without specific therapy [5,6]. Of the remaining 20% who continue to bleed or rebleed, the mortality rate is 30-40% [1,9,10]. The mortality is associated with variceal bleeds and the overall incidence is 6-10% [11]. GI bleeds are likely to be seen more in the coming years with an ageing population, with increasing use of non-steroidal anti-inflammatory drugs, single or multiple anti-thrombotic agents and novel anti-coagulants [12,13].

The epidemiological spectrum of UGI bleed may vary in different geographical regions. Such data on clinical and endoscopic profile of patients with UGI bleed helps in understanding epidemiological pattern, factors associated with mortality and to consider appropriate management tools in the hospital. This study was aimed to determine the clinical profile and prognosis of patients with UGI bleed in this hospital.

MATERIALS AND METHODS

This was a cross-sectional study conducted in the Department of Gastroenterology, Government Medical College, Kottayam from January to December 2018. The Institutional Research and Ethical Committee approval (IRC/92/2015) was obtained. An informed consent was obtained from all patients. All patients above the age of 15 years admitted with symptoms of UGI bleed like haematemesis and/or melena were included in the study. Patients presenting with haematochezia alone, occult stool blood positivity on evaluation of anaemia and history of haemoptysis were excluded from the study group.

Patients that satisfied the inclusion criteria were interviewed as per a prepared proforma. Demographic profile of the patients was recorded which included age, sex, place of residence. History regarding alcohol intake, Non Steroidal Anti-Inflammatory Drugs (NSAIDs) use, anti-coagulants was also elicited. Focused examination was carried out to record blood pressure, heart rate, postural symptoms. Other investigations like ultrasound or Computed Tomography (CT) scan were performed in cases requiring evaluation. Ultrasound features of surface nodularity or irregularity or reduction in liver size with/without features of portal hypertension like diameter of portal vein more than 12 mm, splenomegaly or portal collaterals were also evaluated.

Those patients diagnosed as having portal hypertension received octreotide and antibiotics; and those with peptic ulcer or erosive mucosal disease received pantoprazole infusion before endoscopy. Patients received appropriate treatment accordingly and patients were followed-up for six weeks for recurrence of bleed. Severe anaemia was defined as haemoglobin <6 g/dL [14]. Patients were considered as smoker if pack years (number of packets of cigarettes smoked × number of years) was more than 200 and as alcoholic if amount of alcohol consumed was more than 40 gm in males and 20 gm in females for more than eight years [15-17].

STATISTICAL ANALYSIS

The statistical results are presented as mean and Standard Deviation (SD) for continuous variables and as frequencies and percentages for categorical variables. Association between qualitative variables was analysed using Chi-square test. Association between quantitative variables was analysed using Independent sample t-test. Significance level was fixed as p-value of <0.05. The Statistical Package for the Social Sciences (SPSS) software version 22 package for Windows was used for statistical analysis.

RESULTS

A total of 138 cases of UGI bleed were evaluated in this period. The age range in patients was from 15 years (youngest) to 89 (oldest) years, with a mean of 53.5±13.17 years. Males contributed to 107 patients (77.5%). The most common clinical presentation was hematemesis {57 patients (41.3%)} followed by hematemesis and melena {46 patients (33.3%)}. Pyrosis and dyspepsia was more commonly seen among females while retching was more common in males. Total 73.2% patients were alcoholics and 61.6% were smokers. Clinical characteristics are depicted in [Table/Fig-1].

Characteristics	Number	Percentage
Age	53.5±13.7 years	
Gender (male/female)	107/31	77.5/22.5
Symptoms		
Hematemesis	57	41.3
Malena	32	23.2
Hematemesis with malena	46	33.3
Hematochezia	3	2.2
Pyrosis	16	11.6
Dyspepsia	9	6.5
Signs		
Pallor	107	77.5
Icterus	41	29.7
Ascites	15	10.9
Hepatic encephalopathy	7	5.1
Haemoglobin <6 gm/dL	5	3.6
INR >1.5	24	17.4
Patient requiring transfusion	38	27.5
Aspirin consumption history	13	9.4
Clopidogrel consumption history	10	7.2
NSAID consumption history	9	6.5
Significant alcohol history	101	73.2
Significant smoking history	22	61.6
History of diabetes mellitus	24	17.4
History of hypertension	22	15.9
History of COPD	3	2.2
History of CKD	2	1.4

[Table/Fig-1]: Clinical and haematological characteristics of patients in the study.
INR: International normalised ratio; NSAID: Non steroidal anti-inflammatory drugs; COPD: Chronic obstructive pulmonary disease; CKD: Chronic kidney disease

The most common cause on endoscopy was portal hypertension related oesophageal and gastric varices (51.4%) followed by antral gastritis (15.2%). The cause of UGI bleeding could not be identified in 7 (5.1%) in which the endoscopy was normal [Table/Fig-2].

Endoscopy findings	Total number	Percentage
Portal hypertension related gastric and oesophageal varices	71	51.4
Antral gastritis	21	15.2
Gastric erosion	10	7.2
Duodenal ulcer	7	5.1
Gastric ulcer	5	3.6
Oesophagitis	4	2.9
Mallory weiss tear	4	2.9
Duodenal growth	3	2.4
Post banding ulcer	2	1.4
Oesophageal growth	1	0.7
Gastric growth	1	0.7
Gastric antral vascular ectasia	1	0.7
Dieulafoy lesion	1	0.7
Normal study	7	5.1

[Table/Fig-2]: Showing aetiological factors for upper GI bleed.

[Table/Fig-3] shows the difference in the mean haemoglobin, Mean Corpuscular Volume (MCV), platelet count, serum albumin and International Normalised Ratio (INR) between variceal and non-variceal bleed which was statistically significant (p-value <0.05). Ultrasound features of cirrhosis were seen in 50.7%. Ascites was seen in 10.9% of the cases in this study. Serum albumin was less than 2.8 g/dL in 29.7%.

Parameters (Mean values)	Variceal cause (n=71 patients)	Non-variceal cause (n=60 patients)	p-value (Independent t-test)
HB (gm/dL)	9.4±2.4	10.8±3.2	0.047
MCV (fL)	95±6.1	86±10.4	0.036
Platelet count ($x10^5$ cells/mm^3)	1.12±0.21	2±0.4	0.041
Albumin (mg/dL)	3±0.5	3.6±0.6	0.04
INR	1.5±0.3	1.1±0.2	0.05

[Table/Fig-3]: Showing parameters in variceal vs non-variceal cause of upper GI bleed.
HB: Haemoglobin; MCV: Mean corpuscular volume; INR: International normalised ratio

The overall mortality in the study was 7.9% (11 patients). Among these, one patient succumbed to death due to gastric malignancy, one secondary to post EVL (Endoscopic Variceal Ligation) ulcer and rest of nine patients secondary to variceal bleed. Univariate analysis among survivors and non-survivors are shown in [Table/Fig-4]. Low haemoglobin, platelet and albumin and higher bilirubin, INR were significantly associated with mortality.

Parameters	Non-survivors n=11	Survivors n=127	Significance
Age (years)	49.8±11.7	52.7±13	0.483
Sex (M/F)	11/0	96/31	0.063
Haemogram (gm/dL)	6.2±1.7	10.4±2.1	0.001
Platelet (10^5 cells/mm^3)	0.8±0.28	1.7±0.8	0.001
Urea (mg/dL)	88.9±30.3	40.3±23.9	0.267
Creatinine (mg/dL)	1.2±0.8	1.1±0.3	0.154
Bilirubin (mg/dL)	3.3±2.7	1.9±2.1	0.041
Albumin (gm/dL)	2.7±0.3	3.3±0.6	0.009
INR	1.7±0.5	1.2±0.3	0.001
Variceal bleed	10	62	0.007

[Table/Fig-4]: Showing significant parameters associated with mortality.
Chi-square test for qualitative variables, Independent t-test for quantitative variables

DISCUSSION

This study showed a significant number of varices related GI bleed than non-variceal and a mortality rate of 7.9% in population. A total of 138 patients with UGI bleed were followed-up. The mean age of patients was 53 years, with male predominance. Relatively younger mean age in this study shows the urgency in management of working age group in the population. People of this group are also prone for more analgesic abuse. In a study done by Singh SP and Panigrahi MK from India it was found that UGI bleeding is more common in males with a male-to-female ratio of 6:1 [18]. Previous studies from India have shown similar age of presentation which ranges from 40-55 years [5,18,19].

Age and co-morbidities are other important factors for high mortality in patients with GI bleeding. Severity and mortality rates are also higher in elderly population due to co-morbidities and higher prevalence of malignancies in elderly patients [5,20]. In this study, hematemesis was most common presentation {57 patients (41.3%)} followed by combined hematemesis and malena {46 patients (33.3%)}. In the study done by Panigrahi PK and Mohanty SS, melena was the most common presentation (63%) followed by hematemesis and melena (20%) [21]. Presentation of symptoms varies from dyspeptic symptoms to hematemesis in these patients and pre-emptive endoscopy helps in early diagnosis and management.

There are variable results for comparison of variceal vs non-variceal aetiologies of UGI bleed. In the present study, the most common cause of UGI bleed was portal hypertension related gastric and oesophageal varices (51.4%). This was followed by antral gastritis (15.2%), gastric erosions, ulcer disease and malignancy. [Table/Fig-5] shows comparison of aetiologies of UGI bleed among various Indian studies [1,19,22-24]. The higher number of patients with variceal bleeding in the index study was seen because alcoholic liver disease and cirrhosis is highly prevalent in this region, and since it is a referral hospital, all the critical patients due to variceal bleed are referred to the hospital.

Place and Publication year	Present study (2021)	North India (1983) [22]	Kolkata (2016) [1]	Mumbai (2001) [19]	Chennai (2007) [23]	Kerala (2009) [24]
Study population	138	408	337	398	408	1582
Variceal cause	51.4	30	40.2	15.3	17.8	35
Peptic ulcer disease	8.7	45.5	33.8	56	33.3	30.9
Antral gastritis	15.2	8.5	10.6	4.5	43.6	13
Malignancy	3.8	-	2.9	0.75	2.4	2

[Table/Fig-5]: Comparison of aetiological spectrum of UGI bleed among literature from India [1,19,22-24].

Other risk factors included aspirin and NSAID usage. In this study 9.4% had history of aspirin intake, 7.2% had history of clopidogrel intake and 6.5% had history of NSAID intake. This was comparable to other studies and signifies the importance of monitoring when patients are on cardiac drugs or on inadvertent NSAID usage [18,19,25,26]. In the present study, pallor was present in 77.5% of cases and transfusions were required for 27.5%. This is comparable to Indian studies where transfusion requirement in UGI bleed patients ranges from 20-50% patients [5,6,18-20]. There was statistically significant difference between haemoglobin, platelet count, mean INR and albumin of variceal and non-variceal bleed patients. This helps in triaging patients in emergency room and to provide specific management for variceal bleed like octreotide or terlipressin, even before performing endoscopy. Also, in explaining varying disease specific prognosis to patients and preparing for accessories in the endoscopic management of these patients.

The mortality rate of patients was 7.97 %, in this study. Mortality rate depends on multiple factors like age, associated co-morbidities, severity of bleed and availability of endoscopic/surgical/interventional radiological expertise in some cases. In a study by Zaltman C et al., the mortality was as high as 15.34% [25]. This signifies the importance of UGI bleed as an emergency. Early management and endoscopic treatment shall reduce this high mortality. Understanding the demographic picture and importance of differentiating variceal vs non-variceal bleed and triage of patients accordingly will have great impact in overall management. A 6-week mortality was predominantly seen in variceal bleed secondary to cirrhosis of liver as compared to non-variceal bleed. This was due to higher mortality associated with disease per se and the consequent decompensation due to bleed.

Limitation(s)

Since this is a referral hospital, possibilities of referral bias in the study group was one of main limitation and that it cannot be generalised to whole population. Also, treatment outcomes were not studied. However, being a single-centre study, it provides credibility to the study as all consecutive patients with UGI Bleed were included in the study, eliminating a selection bias.

CONCLUSION(S)

Portal hypertension related bleeding is the common cause for UGI bleed with significant mortality. Lower haemoglobin, albumin and variceal aetiology are associated with significant mortality.

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PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Jul 30, 2020
- Manual Googling: Jan 20, 2021
- iThenticate Software: Feb 17, 2021 (12%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Jul 25, 2020**
Date of Peer Review: **Aug 14, 2020**
Date of Acceptance: **Feb 06, 2021**
Date of Publishing: **Mar 01, 2021**