STUDY OF AETIOLOGY, CLINICAL PROFILE AND ENDOSCOPIC FINDINGS OF PATIENTS WITH UPPER GASTROINTESTINAL BLEEDING- A STUDY FROM RURAL BASE MULTI-SPECIALTY TEACHING HOSPITAL

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ABSTRACT

BACKGROUND

Upper gastrointestinal bleeding (UGIB) is one of the common life-threatening emergency hospital admissions. Upper GI Endoscopy is one of the common diagnostic examinations for identifying the cause of bleeding in our as well as in resource-limited setup which ultimately help a clinician for "resource-sensitive approach".

METHODS

This observational study (2015-2017) of upper gastrointestinal bleeding (UGIB) was performed at rural based multispecialty teaching hospital in consecutive 115 adult admitted patients (age>12 years) to find out aetiology and clinical as well as esophagogastroduodenoscopic profile.

RESULTS

Of 115 patients of UGIB, 75 were male (65.21%) and 40 female (34.78%). Mean age was 42.06 ±16.31. 77 (66.95%) presented with hematemesis, 21 (18.26%) with melena, 16 (13.91%) with hematemesis combined with melena and 1 patient presented with hematemesis as well as haematochezia. Endoscopy was able to detect definite cause of UGIB in 104 and in 11 patients it was normal (90.43%). Variceal bleed was commonest and was present in 48 patients, of whom 44 patients (38.26%) had oesophageal, 02 had gastric and other 2 had both oesophageal as well as gastric varices. In non-variceal bleeding, gastric and duodenal ulcer disease was present in 12, esophagitis in 10, oesophageal vascular ectasia in 02, erosive gastritis in 17, gastric malignancy in 04; Mallory Weiss tear in 06, erosive gastritis with duodenitis in 04, and esophagitis with gastric ulcer and duodenal ulcer in 01. 10 of 17 patients who had erosive gastritis gave history of NSAID use. Of the 48 patients who had variceal bleeding, 33 were due to cirrhosis of liver, and 15 were because of non-cirrhotic portal hypertension. Aetiology of 33 patients, who had hospital admission due to cirrhosis of liver related UGIB, was alcohol, hepatitis B, and hepatitis C in 29, 2 and 1 patients respectively. 81 (70.43%) had acute bleeding while 34 (29.56%) had recurrent bleeding. 17 patients were admitted in 2015, 45 in 2016 and 53 in 2017 for UGIB. There was no seasonal variation in incidence of UGIB.

CONCLUSIONS

Esophagogastroduodenoscopy is one of the very important diagnostic tools to find out aetiology of UGIB. This facility should be available widely at health centers of India which may help clinicians for better management of UGIB.

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BACKGROUND

Upper gastrointestinal bleeding (UGIB) is one of the common emergency admissions to a hospital.[1] Patient may present commonly with hematemesis and/or melena while rarely with hematochezia.[2,3,4] Patients may present with acute bleeding and may have life threatening shock and may die because of it.[3] In India, especially from rural setup, patients may go to primary or secondary health centre where facility of endoscopic services may not be available and after resuscitation may be referred to tertiary care centre/endoscopic centre for further evaluation and management or else may come directly to such a facility setting hospital.

Proper etiological diagnosis is important to manage acute bleeding and also further recurrence. UGIB may be because of variceal bleeding which accounts for 10-30% or due to non-variceal bleeding which accounts for the rest. Varices may be due to portal hypertension. Oesophageal as well as gastric varices are vascular channels and are bridges between portosystemic circulations which open up due to high hepatic venous pressure gradient. A concept, very important which is generated by World Gastroenterology Organization (WGO) is of "Cascade" which is related to

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resource-sensitive approach. Idea that full scale of diagnostic tests and treatment is not available at all setting for UGIB, an alternative approach can be adopted according to resources available.[5]

Our hospital is a multispecialty hospital located 15 kilo-meter from Vadodara of Central Gujarat, which caters services to local rural populations and also give services to referred patients of Central Gujarat, Madhya Pradesh and Maharashtra. As our patient –mix may represent more under privileged, rural and referred patients from centres were endoscopic services are not available, we thought to find out aetiology and their profile and to share it so that patient can be managed in best possible manner in resource limited setups.[5]

METHODS

This was observational, hospital-based study. All patients who came with Upper gastrointestinal bleeding (UGIB) having age above 12 years and required Hospital admission were included in this study. It included all admitted patients of upper GI Bleed who came directly to our hospital and also patients who were referred from other health centre to our place for diagnosis and for further management. The organization where this study was carried out is a teaching hospital attached to multi-speciality tertiary care Dhiraj Hospital, which has Indoor bed strength of 1068 patients. It is affiliated to Sumandeep Vidyapeeth University. It has state in art Intensive Care Unit and has dedicated endoscopy centre.

It included consecutive 115 patients who were admitted between January 2015 to December 2017 i.e. period of three 3 years with upper gastrointestinal bleeding. The Esophagogastroduodenoscopy was done by first author in all these patients, after proper informed consent and after hemodynamic stabilization. The detailed history of GI bleeding, alcohol abuse and NSAID use were taken. All patients underwent thorough physical exam, and review of past record was made. After initial hemodynamic stabilisation and routine investigations, were subjected to upper GI endoscopy to determine the aetiology.[4] Endoscopy was done by using 2% lignocaine spray into pharynx. All other relevant investigations which were needed for comprehensive diagnosis and management was carried out. This was to detect associated co-morbidities, Rockall scoring[6] and for prognostication. Reporting was done after proper visualisation of all the relevant areas of upper gastrointestinal tract. Endoscopic findings were reported in form whether it was variceal bleeding due to oesophageal or gastric varices and/or non-variceal bleeding which included rest of other causes. Oesophagitis was graded by Los-Angeles (LA) classification system.[7] Oesophageal varices were graded into small and large varices by endoscopic finding in relation to size.[5]

The Esophagogastroduodenoscopy was done within 24 hours of bleeding in 90 patients, in 22 within 48 hours and in remaining 3, it was done within 72 hours of hospital admission. This was because of the patient hemodynamic status and other patients related factors.

RESULTS

This study is of 115 patients of UGIB, of which 75 were male (65.21%) and 40 female (34.78%), ratio being 1.8: 1. Majority of patients (92 of 115, 80%) were between 20 to 60 years. There were only 13 patients above age of 60 years. Mean age of these patients was 42.06±16.31. (Table 1)

Age (Years)	Male	Female	Total
12-20	02 (2.6%)	08 (20%)	10 (8.6%)
21-30	15 (20%)	10 (25%)	25 (21.7%)
31-40	14 (18.6%)	10 (25%)	24 (20.8%)
41-50	22 (29%)	03 (7.5%)	25 (21.7%)
51-60	14 (18.6%)	04 (10%)	18 (15.6%)
61-70	05 (6.6%)	02 (5%)	07 (6%)
>70	03 (4%)	03 (7.5%)	06 (5.2%)
Total	75 (100%)	40 (100%)	115 (100%)

Table 1. Age and Gender of Patients Having Upper Gastrointestinal Bleed (UGIB)

Majority presented with hematemesis. Melena was present in 21 and both (haematemesis + melena) in 16 patients. One male young patient had hematemesis as well as haematochezia who complained of passing fresh blood in stools. He had severe, brisk upper gastrointestinal bleed due to Mallory Weiss tear. Of 94 patients who had hematemesis (alone or with combination), 52 patients had bright red blood and 42 had coffee ground material. Melena in form of black tarry stool was present as sole symptom in 21(18.26%) and with hematemesis in 16 (13.91%) patients. (Table 2)

Clinical Presentation	Male	Female	Total (%)
Haematemesis	49 (65.3%) (63.3%)	28 (70%) (36.3%))	77 (66.95%)
Melena	14 (18.6%) (66.6%)	7 (17.5%) (33.3%)	21 (18.26%)
Haematemesis + Melena	11 (14.6%) (68.7%)	5 (12.5%) (31.2%)	16 (13.91%)
Haematemesis + Haematochezia.	01 (1.3%) (100%)	0 (0%)	01 (0.86%)
Total	75 (100%)	40 (100%)	115 (100%)

Table 2. Clinical Presentation of UGIB

Cause of bleeding in 44 patients (38.26%) was oesophageal varices, in 2 it was gastric varices while in other 2 it was due to both oesophageal as well as gastric varices. In 10(8.69%), it was due to esophagitis, in 9 (7.8%), it was due to gastric and in 3 due to duodenal ulcer. Gastric malignancy was present in 4(3.4%) and Mallory Weiss tear was present in 6(5.21%).2 patients had oesophageal vascular ectasia which caused acute GI bleed. Erosive Gastritis as a cause of UGI Bleed was present in 17(14.7%) of which 10 had history of NSAID use. Erosive gastritis and duodenitis was present in 4, while Esophagitis with gastric ulcer and duodenal ulcer was present in 1 female patient in

whom we thought of gastrinoma however investigation did not prove it. (Table 3)

Of 48 patients who had variceal bleeding, 33 were due to cirrhosis of liver and 15 were because of non-cirrhotic portal hypertension. Of 33 patients who had cirrhosis of liver, 29 was due to alcoholic cirrhosis, 3 had Hepatitis B and 1 had Hepatitis C related cirrhosis.

Diagnosis	Male (No)	Female (No)	Total (%)
Oesophageal Varices	33 (44%)	11 (27.5%)	44 (38.26%)
Gastric Varices	02 (2.6%)	00	02 (1.7%)
Oesophageal + Gastric Varices	02 (2.6%)	00	02 (1.7%)
Erosive Gastritis	11 (14.6%)	05 (12.5%)	16 (14.7%)
Gastric Ulcer	04 (5.3%)	05 (12.5%)	09 (7.8%)
Gastric Malignancy	02 (2.6%)	02 (5%)	04 (3.4%)
Esophagitis	05 (6.6%)	05 (12.5%)	10 (8.69%)
Duodenal Ulcer	02 (2.6%)	02 (5%)	04 (3.4%)
Oesophageal Vascular Ectasia	01 (1.3%)	01 (2.5%)	02 (1.7%)
Mallory Weiss Tear	05 (6.6%)	01 (2.5%)	06 (5.21%)
Normal Endoscopy	04 (5.3%)	07 (17.5%)	11 (9.56%)
Erosive Gastritis + Duodenitis	04 (5.3%)	00	04 (3.4%)
Esophagitis + Gastric Ulcer + Duodenal Ulcer	00	01 (2.5%)	01 (0.85%)
Total	75 (100%)	40 (100%)	115 (100%)

Table 3. Diagnosis on Esophagogastroduodenoscopy

Patients of UGIB, was divided into acute if patients presented with first time bleeding and into recurrent bleeding if previous history of UGIB was present. Out of 115 patients, 81(70.43%) had acute bleeding while 34(29.56%) had recurrent bleeding. (Table 4)

Nature of Bleed	Male	Female	Total
Acute	54 (72%)	27 (67.5%)	81 (70.43%)
Recurrent	21 (28%)	13 (32.5%)	34 (29.56%)
Total	75 (100%)	40 (100%)	115 (100%)

Table 4. Presentation of Patients

We had started this study in January 2015 and in 2015 there were 17 patients, in 2016, 45 and in 2017 there were 53 patients. Month wise incidence of UGIB is presented in Table 5.

Month Wise Incidence	2015	2016	2017	Total
Jan	01	03	04	08
Feb	01	06	01	08
March	02	06	07	15
April	02	02	01	05
May	00	03	09	12
June	00	01	01	02
July	00	00	07	07
August	01	04	07	12
September	02	01	07	10
October	02	08	06	16
November	02	06	02	10
December	04	05	01	10
Total	17	45	53	115

Table 5. Month Wise Incidence

DISCUSSION

UGIB is bleeding from GI tract proximal to ligament of Treitz.[8] This study was done to find out frequency of different causes of UGIB at our set up. Endoscopy was able to detect definite cause of UGIB in 104 and in 11 patients it was normal (90.43%).Variceal bleed was commonest and was present in 48 patients of 104 patients (46.15%) in whom endoscopy gave detectable cause of 11 patients in whom patients gave history of hematemesis and lower GI bleed was excluded, in 8 it was done within 24 hours, in 1 it was done within 48 hours and in rest one patient it was done within 72 hours. Thus, delay in endoscopy may not be explainable cause and remained unidentified by us in follow up period which was at least up to discharge from the hospital.

Similar prevalence studies are done in India as well as from other developing countries.[9-17] As studies are from different geographical locations and having different infrastructural facilities, results in relation to causes, clinical profile and outcome may vary. Table no 6 shows analysis of different studies having almost similar objectives of their research. Last column of "Remarks" of table 6 is the key result of particular study which is highlighted. These studies are either from developing country or from a setting of limited resources and can be important for "resource-sensitive" approach and also for devising diagnostic and therapeutic protocol at a local level[5]. Generating evidence is very important for such conditions and thus we tried to present our findings and is compared with work done by others.[18]

Panigrahi PK, Mohanty SS[9] studied 100 patients in year 2015 and there was preponderance of UGIB due to non-variceal bleeding. 54% had peptic ulcer as a cause of UGIB. Only 13% had variceal bleeding. This may be due to epidemiological factors as well as because of setup difference as study was carried out at surgical department. UGIB is tackled by both physicians and surgeons as well as by specialized gastro units and emergency departments. As many patients of UGIB may be referred patients, the reference to endoscopy or higher centre may be done as per clinical suspicion of the aetiology. The reference also may be

made as per geographical location of nearby centre as well as to a known centre for specific service expertise.

In 2015, our patients of UGIB were direct patients which came to Emergency/ICU with acute bleeding. In 2016 and 2017 our patient load increased which was due to referred cases, some of which were of recurrent bleeding also. (Table 5).

Kashyap R, Mahajan S et al study from Shimla, India had high incidence of peptic ulcer disease presenting as UGIB. High and moderate altitude geographical location was given importance**.** They also concluded that high prevalence of UGIB is in the winter season at moderate altitude.[11] Table 5 of our study shows month wise incidence. In Central Gujarat, winter months are from Oct to January, rainy season is from June/July to September and Summer months are from February/March to June. Our data does not show any seasonal preference.

A study from Military hospital Rawalpindi, Pakistan by Sher F, Ulah RS et al[13] in 2010, reported high incidence of UGIB due to oesophageal varices. Study concluded that it reflects high prevalence of cirrhosis. Our study also had 41.74% prevalence of variceal bleeding as a cause of UGIB. 33 out of 48 patients (68.75%) who had variceal UGIB had cirrhosis of liver. Gujarat being "Dry State," oesophageal varices due to alcoholic cirrhosis is presumed to be less, paradoxically 29 of 115(25.22%) had UGIB due to alcoholic cirrhosis. We presume that it may be due to illegal alcohol abuse in form of "country liquor" which may be responsible and has likely toxicity to liver. Another study from Pakistan, Islamabad concluded that variceal bleeding is a common cause of UGIB in Pakistan.[14] Both the studies of Pakistan which is quoted in this study commented upon high prevalence of cirrhosis due to hepatitis leading to varices as a cause of UGIB. In our study variceal bleeding was the most important cause however unlike both these studies from Pakistan, alcoholic cirrhosis was the most common cause of varices, while they reported that hepatitis is the common cause for the cirrhosis. In this study, 3 patients had Hepatitis B and 1 patient had Hepatitis C induced cirrhosis of liver leading to portal hypertension and oesophageal varices.

Study from South of Iran by Kaviani M.J et al showed NSAIDs consumption leading to gastric ulcer as one of the most common cause of UGIB.[16] In our study gastric ulcer was present in 9 out of 115 patients and was not related with NSAID use. In our series 17(14.7%) patients had erosive gastritis of which 10 gave history of NSAID use. A hospital-based case control study from University hospital Basel, Switzerland concluded the NSAID carries high risk of UGIB with and without use of other agents like glucocorticoids and/or anticoagulants.[19]

No.	Study By/Year	Set Up	Study Place / Country	No. of Cases	Variceal Bleeding	Non-Variceal Bleeding	Remarks
1.	Panigrahi PK, Mohanty SS et al[9]/2015	M.K.C.G Medical College	Brahmapur, Odisha, India	100	13	87	Peptic ulcer was found to be the cause in 54%
2.	Mulima G. et al.[10]/2010	Kamuzu Central Hospital	Liongwe Malwai	187	80	107	Variceal bleeding was in 42.8%
3.	Kashyap R, Mahajan S et al[11]/2000	Indira Gandhi Medical College	Shimla Himachal Pradesh, India	111	12	99	Peptic ulcer was present in 61%
4.	Ali F, Bhatti, AB et al[12]/2013	Capital Development Authority Hospital	Islamabad Pakistan	101	69	31	Variceal bleeding was present in 68%
5.	Sher F, Ulah RS et al[13]/2010	Military Hospital	Rawalpindi Pakistan	244	176	68	72% was diagnosed with variceal bleed
6.	Dewan KR, Patowary BS et al[14]/2013	Teaching Hospital	Bharatpur Nepal	120	56	64	Variceal bleeding was as a cause in 47.5%
7.	Akere A, Akande KO[15] et al/2014	University College Hospital	Ibadan Nigeria	123	9	114	Gastric erosion was leading cause in 56% cases
8.	Kaviani MJ, Pirastehfar M, et al[16]/2008	Shiraz Univ. of Medical Sciences	Shiraz Iran	572	64	252	44% cases diagnosed with peptic ulcer disease
9.	Anand D, Gupta R, et al[17]/2012	Himalayan Inst of Medical Sciences	Dehradun, Uttarakhand India	114	64	50	56% was presented with variceal bleed
10.	Present Study (Kumar S, Lakhani JD et al/2017	Tertiary care Hospital	Vadodara Gujarat	115	48	67	Variceal bleeding was present in 41.66% cases

Table 6. Analysis of Different Studies on UGIB

Hematemesis which is defined as vomiting of blood from the oesophagus, stomach or duodenum is very important presenting symptom of UGIB.[2] 94 of 115 of our patients had hematemesis, 52 had bright red blood and 42 had coffee ground material. Vomiting of bright red blood suggests recent bleeding and coffee ground material indicates bleeding which has stopped some time ago. Melena, black tarry stool, is due to degradation of blood to hematin or other hemochromes by intestinal bacteria. Melena was present in 37, sole melena in 21 and both (hematemesis + melena) in 16 patients. Mallory Weiss tear may present with severe bleeding and may have haematochezia. Our series had 1 such patient who had hematemesis as well as haematochezia.

Most studies have reported incidence of UGIB more in elderly patients and high in male patients. Present study patients mean age was 42.06 and were relatively younger patients. It is difficult to pin point the cause for more younger patients in our series but we do believe that alcoholic cirrhosis develops at younger group in Gujarat due to use of country liquor. Male preponderance was also present in our study like all other studies because alcohol consumption being more common with males. Hormonal factors may also be playing part.

CONCLUSIONS

Esophagogastroduodenoscopy is one of the very important diagnostic tools to find out aetiology of UGIB. This facility should be available at remote and secondary health centre of India which may help patients for better management of UGIB.

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