

RESEARCH ARTICLE

TO STUDY THE CLINICAL PROFILE AND OUTCOME OF UPPER GASTROINTESTINAL BLEED - A TERTIARY CARE EXPERIENCE

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Manuscript Info

Abstract

Manuscript History Received: 15 April 2017 Final Accepted: 17 May 2017 Published: June 2017

*Key words:-*Gastrointestinal Bleeding, Variceal, Orthostatic Changes, Blood Transfusion **Background:**Acute upper gastrointestinal (UGI) bleeding is one of the common medical emergencies that have a hospital mortality of approximately 7% to 10%. Acute upper GI bleed is divided into variceal and non-variceal causes. Acute non-variceal upper GI bleeding remains one of the most common challenges faced by Gastroenterologists and Endoscopists in their day to day clinical practice.

Objectives:To study the clinical profile and outcomeof upper gastrointestinal bleed.

Methodology: All patients underwent thorough history taking and meticulous physical examination (general physical and systemic examination) withcareful hemodynamic assessment of pulse and blood pressure includingorthostatic changes and urine output. Patients were first hemodynamicallystabilised (fluids, inotropic support, blood transfusion was given wherever required). Laboratory investigations such as CBC, liver/ kidney function tests, PT/INR, chest X-ray, electrocardiogram, urine microscopy, and ultrasonography of abdomen were done in all patients.

Results: 25% (n=90) patients had varicealhaemorrhage and 75% (n=290) had non-varicealhaemorrhage as the cause of Upper GI bleed. NSAIDs were the mostfrequently taken medication (16.6%, n=60).the commonest clinical presentation was hematemesis and melena (43%, n= 154) cases. The prevalence of other presentations wasmelena (34.4%, n=124), hematemesis (17.2%, n=62) and hematochezia (5.6%, n=20). Hematemesis with malena (82.2%, n=80) was the predominant presentationamong patients with variceal bleed. Malena was present in 17.8% (n=16) ofpatients with variceal bleed. None presented as haematochezia or hematemesis alone. The main presentation of non-variceal bleeding was melena (40%, n=108). Other presentation were hematemesis with melena (29.6%, n=80),hematemesis (22.9%, n=62) and hematochezia (7.5%, n=20).

Conclusion: Upper gastrointestinal bleeding is a common acute medical emergency. The Rockall score is an effective tool for outcome prediction in patients with acute upper GI bleeding.

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Introduction:-

Acute upper gastrointestinal (UGI) bleeding defined as bleeding proximal to the ligament of Treitz, is a common and potentially life threatening GI emergency with a wide range of clinical severity ranging from insignificant bleeds to catastrophic exsanguinating hemorrhage¹. It is one of the common medical emergencies that have a hospital mortality of approximately 7% to 10%². Acute upper GI bleed is divided into variceal and non-variceal causes. Acute non-variceal upper GI bleeding remains one of the most common challenges faced by Gastroenterologists and Endoscopists in their day to day clinical practice³⁻⁹.Worldwide, peptic ulcer disease, and its complications remain the major cause of morbidity and mortality. They cause a lot of drain on economy worldwide. H.pylori, worldwide has described to be a cause of peptic ulceration in 90% duodenal ulcers and up to 80% of gastric ulcers¹⁰. However, this trend is seen in developing countries. While in developed countries, H. pylori is found in 75% of cases while NSAIDs and Aspirin are major causes of gastric ulcers¹⁰.

Despite the advances in therapeutic management, mortality has remained unchanged which may be due to increased longevity, comorbid conditions in the elderly, liver disease, frequent use of non-steroidal anti-inflammatory drugs (NSAIDs) and anticoagulants. As many as 70% of acute upper GI bleed episodes occur in patients older than 60 years and the incidence increase withage probably because of increased consumption of NSAIDs which provoke ulcerogenesis. Non variceal UGI bleeding is the most common cause where peptic ulcer disease accounts for 50% to $70\%^{11}$. Peptic ulcer disease is generally higher in Asia than in the West. There is marked variation in regional prevalence¹⁰. The estimated annual incidence is approximately 40-150 cases per 100000 persons for upper gastrointestinal bleeding (GIB) and 20-27 cases per 100000 persons for lower GIB. Mortality rate for both upper and lower GI bleed is estimated to be around 4%-10%^{12,13}. Bleeding is self- limited in 80% of patients with UGI bleed, even without specific therapy. Of the remaining 20% who continue to bleed or rebleed, the mortality rate is 30% to 40%^{14,15,16}.Advanced age has been consistently identified as a risk factor for mortality among patients presenting with upper GI bleed^{17,5}, presumably because of thehigh prevalence of comorbid illnesses (such as cardiovascular disease¹⁸) inelderly as compared with younger patients with upper GI bleed. Mortalityrates ranging from 12% to 35% for those aged over 60 years, compared with<10% for patients younger than 60 years of age, have been reported inprevious studies¹⁹, with overall mortality rates of $5\%-11\%^{20}$. The incidence of upper GI bleeding is 2-fold greater in males than in females, in all age groups; however, the death rate is similar in both sexes⁵⁴.

In USA, the one year point prevalence of PUD is 1.8% (1% to 6% range) with 500,000 new cases occurring annually. Studies from Europeshowed a prevalence of 4% to 6% of PUD (DU: 2.1% to 3.9%, GU2.0% to 2.3%)^{22,23}. Published data from China (Shanghai) has revealed the prevalence rate of PUD 17% (DU 13%, GU 6%)^{24,25}. In 2014 a review reported the prevalence of idiopathic ulcers was 10-30% in Asia since 2000^{26} . In India the point prevalence of peptic ulcer is 3.4% and the lifetime prevalence of peptic ulcer is 8.8%. Duodenal ulcer versus gastric ulcer ratio is12:139. In Kashmir, the point prevalence of peptic ulcer in urban Kashmir is4.70% and lifetime prevalence of peptic ulcer in Kashmir is11.22% andduodenal ulcer versus gastric ulcer ratio is 17.1:158. In Thailand a review of 5000 patients of haematemesis and melaena revealed, peptic ulcer disease in 51%, acute mucosal erosion in 31.6%, and normal study in (2.46%)²⁷In Pakistan, a prospective study of 350 cases who presented with haematemesis endoscopic study of upper GIT revealed esophageal varices in 24% and superficial mucosal lesion in 17% cases²⁸. Mortality from bleedingulcers increased with age²⁹. The ASGE³⁰Survey data suggested that healthy patients less than 60 year old with no underlying disease have a mortality of only 2%. However mortality from a first bleed from varices is around 5% and most survivors re-bleed withinpatient mortality of about 30%. The primary diagnostic test for evaluation of upper GI bleeding is endoscopy. Endoscopy for upper GI bleed has sensitivity of 92-98% and specificity of 30-100%³¹. Early endoscopy and endoscopic appearance help in diagnosis and to guide care and thereby reduce rebleeding, requirement for transfusion, need for surgery, costs and duration of hospitalization^{32,33}.

Aims And Objectives:-

- 1. To study the demography of upper GI bleed (variceal and nonvariceal).
- 2. To study the severity of upper GI bleed.
- 3. To study the associated comorbidities of patients with upper GI bleed.
- 4. To study the outcome (morbidity and mortality) of patients with upperGI bleed.

Material And Methods:-

This was a prospective observational study of patients who were admitted to Postgraduate department of Medicine andGastroenterology, Government Medical College Srinagar, a tertiary care hospital in Kashmir, as clinically suspected cases of Upper GI bleed. The study was conducted over a period of one years (August 2017- August 2018), and a total of 180 patients were enrolled in the study.

Inclusion Criteria

- 1. Patients presenting with upper GI bleed and age ≥ 18 years.
- 2. Patients who give informed consent for the study.

Methodology:-

Patients presenting with upper GI bleed (haematemesis, melena orhematochezia) were enrolled in the study and evaluated further, after proper resuscitation. All patients underwent thorough history taking and meticulous physical examination (general physical and systemic examination) withcareful hemodynamic assessment of pulse and blood pressure includingorthostatic changes and urine output. Patients were first hemodynamicallystabilised (fluids, inotropic support, blood transfusion was given wherever required). Laboratory investigations such as CBC, liver/ kidney function tests, PT/INR, chest X-ray, electrocardiogram, urine microscopy, and ultrasonography of abdomen were done in all patients.

Once the patients were hemodynamically stable, upper GI endoscopy was done in all patients to determine the cause of upper gastrointestinal bleeding, whether variceal or non-variceal after taking an informed consent. Endoscopywas done by two gastroenterologists using Olympus GIF-LV1 processorgastroscope. Rockall scoring system was used to predict the prognosis andchances of rebleeding. Specific therapy was given depending upon the cause.Patients with peptic ulcer disease were treated with IV pantoprazole 80mg IVbolus followed by 8mg/hr infusion for 48-72hrs, and patients with esophagealvarices were treated with Injection Terlipressin 2mg stat followed by 1mg IV thrice a day for 2-3 days. Endoscopy was done without sedation and endoscopic hemostasis and esophageal variceal banding was done whereverrequired at the time of diagnostic endoscopy. Patients were observed inhospital for 2-5 days for rebleed and repeat endoscopy was done whereverrequired. Patients were followed prospectively on day 15, day 30 and day 60 for rebleeding or mortality. No ethical issues were involved as the study doesn't involve any interventional permission for publishing the data was taken.

Statistical Analysis:

The recorded data was compiled and entered into a spreadsheet(Microsoft Excel) and data was analysed using the data editor of SPSS version 26.0 (SPSS Inc., Chicago Illinois, USA). Continuousvariables were summarised as Mean \pm SD. Categorical variables weresummarized as frequencies and percentages. Difference between twoindependent samples mean were analyzed using independent samples t-test. Relationship between two categorical variables was analyzed using chi-square test. A p values less than 0.05 was considered statistically significant.

Results:-

It was a hospital based prospective observational study conducted over twoyears enrolling 360 patients of upper GI bleed. Mean age of the subjects was 47.5 years (range: 19-80). The most common age group was 41-50 years. 78.4% (n=142) were males, and 21.6% (n=38) were females. 25% (n=45) had varicealhaemorrhageand 75% (n=135) had nonvaricealhaemorrhage. Among non-variceal group, 30% (n=53) of the patients had duodenal ulcer, 13% (n=24) had gastric ulcer, 11.6% (n=22) had gastroesophageal malignancy, 5% (n=9) of the patients had gastric erosions, 3.9% (n=7) had Mallory Weiss tear, 2.8% (n=5) had Dieulfoy's lesion, 2.2% (n=4) had stoma site ulcer, 2.2% (n=4) GAVE, 2.2% (n=4) had esophagitis and 2.2% (n=4) had antral gastritis. 26% of patients (n=47) with UGI bleed (n=180) were smokers. All the smokers in our study were males. 98% (n=36) had non-varicealhaemorrhage. 21.7% (n=39) patients took medication. NSAIDS were the most frequently taken medication (16.6%, n=30).

Comorbidity was present in 37.3% (n=67) of patients. The most prevalent comorbidity among our patients was hypertension (23.8%,n=43) followed by CLD (16.7%, n=30) and DM (15.5%, n=28). The commonest clinical presentation of UGI bleed patients washematemesis and melena (43%, n= 77) cases. The prevalence of otherpresentations is as follows melena (34.4%, n=62), hematemesis(17.2%, n=31) and hematochezia (5.6%,

n=10).The major sign of UGI bleed in our patients was tachycardia present in46% (n=82) of patients. Prevalence of other signs was hypotension (n=62, 34.5%), hypotension with tachycardia (n=62, 34.5%), pallor(n=58, 32.2%), encephalopathy (n=27, 15%) and icterus (n=19, 10.5%). 25.6% (n=46) had Hb levels below cut off (Hb<7g/dL). The mean Hblevels in our patients were 9.2mg/dL. Shock was present in 16.7% (n=30) of the patients presenting withupper GI bleed. Of the patients with shock, the cause of bleeding wasvaricealhaemorrhage in 75% (n=22) and non-varicealhaemorrhage in 25% (n=8). Mortality rate associated with UGI bleed in our study was 6.60% (n=12) during hospital stay. Death rate among females was 14.28% (n=6) compared to 4.60% (n=7) among males. Mean age of persons who died was 60.67 years against 47.5 years mean age the participants in the study. Varicealhaemorrhage was the most common cause of death amongpatients with UGI bleed (83.3%, n=10). All the patients dying of anon-variceal cause had gastroesophageal malignancy.

Comorbidity was present in 92% (n=11) of people who died against prevalence of 37% (n=67) among study participants.Of the total 16.7% (n=30) patients with shock 10 died. Thus, mortalityrate associated with shock was 33.3%. Low hemoglobin levels (<7mg/dL) were associated with increased riskof mortality than Hb levels > or = 7mg/dL in our study. 91% (n=11) ofpatients who died had Hb<7. The mortality rate associated with low Hb (<7) was 24% (n=11) against 0.75% (n=1) among patients with Hb>or= 7. Among patients with Hb below 7, 29% (n=14) were femalesagainst 21.4% in the females with UGI bleed.Risk of rebleeding among patients in our study was 8% (n=14) during hospital study. Rebleeding rate among male patients was 8.1% (n=12) and rebleeding rate among female patients was 7.8% (n=3). Varicealhemorrhages were associated with increased rebleeding rates (21%,n=9) than non-variceal hemorrhages (3.7%, n=5). Among patients who rebled 89.7% (n=13) had high Rockall (>5) and 10.3% (n=2) had low Rockall. The mean Rockall score among patients in our study was 4.12 (mode 1). 61.7% (n=111) had low Rockall score and 38.3% (n=69) had high Rockall score. All the patients who died in our study had high Rockall(>5). The mortality rates associated with High Rockall Score was 17.4%. In our study we followed patients at 15, 30 and 60 days. Among alive336 patients who were discharged from the hospital a total of 1.8% (n=3) patients had rebleeding. 2, 3 and 1 patients had rebleeding on 15,30 and 60 days on follow up.

Discussion:-

This study was conducted in the Postgraduate Department of Medicine and Department of Gastroenterology, SMHS Hospital, an associated hospital of Government Medical college Srinagar. It was prospective observational study enrolling patients with Upper Gastrointestinal Bleed. In our study of 180 patients of upper GI bleed, the mean age of the subjects was 47.5 years (range: 19-80). In the study conducted by ParveenI et al, the mean age of patients was 43.65 years³⁴. The most common age group was 41-50 years. In the study conducted by Dewan KR et al, the mean age of patients presenting with upper GI bleed was 48.7 years (range: 14-80 years)³⁵.

In our study out of 180 patients enrolled, 78.6% (n=142) were males, and 21.4% (n=77) were females. The male to Female ratio was 4:1.In the study conducted by Dewan KR et al., out of 120, 90 were males (75%) and 30 were females (25%).74 In the study conducted by Longstreth GF et al, out of 160 patients presenting with Upper GI bleed 60% were males³⁵.

In the study conducted by Vreeberg EM et al, 60% patients with upper GIbleed were men³⁶. In our study, 25% (n=90) had varicealhaemorrhage and 75% (n=290) had non-varicealhaemorrhage as the cause of Upper GI bleed. Among nonvaricealgroup, 30% (n=106) of the patients had duodenal ulcer, 13% (n=48) had gastric ulcer, 11.6% (n=44) had gastroesophageal malignancy, 5% (n=18) of the patients had gastric erosions 3.9% (n=14) had Mallory Weiss Tear, 2.8% (n=10) had Dieulfoy's lesion, 2.2% (n=8) had Stoma site ulcer, 2.2% (n=8) GAVE, 2.2% had Esophagitis and 2.2% (n=8) had Antral Gastritis. In the study conducted by AlimM et al, Endoscopy revealed that duodenal ulcer (34%) was the most common cause of UGI bleeding followed by rupture of portal varices (16%), neoplasm (10%), gastric ulcer (08%) andgastric erosion (06%)³⁷. In the study conducted by Faiza A Qari et al, the causes of upper GI bleed were variceal in 19.9% and non-variceal in 80.1%. Among non-variceal thecauses in the order of frequency for upper GI bleed are as Duodenal Ulcer(32%), Gastric Ulcer (29.7%), Erosions (21%)³⁸. In the present study, 21.7% (n=78) patients took medication. NSAIDswere the mostfrequently taken medication (16.6%, n=60). In the study conducted by ParveenI et al, NSAIDs were taken by 38 (29%)patients, paracetamol by 13 (9.9%)³⁴.

In our study, the commonest clinical presentation was hematemesis and melena (43%, n= 154) cases. The prevalence of other presentations wasmelena (34.4%, n=124), hematemesis (17.2%, n=62) and hematochezia (5.6%, n=20). Hematemesis with malena (82.2%, n=80) was the predominant presentation patients with variceal bleed. Malena was present in 17.8% (n=16) of patients with variceal bleed. None presented as haematochezia or hematemesis alone. The main presentation of non-variceal bleeding was melena (40%, n=108). Other presentation were hematemesis with melena (29.6%, n=80), hematemesis (22.9%, n=62) and hematochezia (7.5%, n=20). In the study conducted by AlimMA et al, presentations were withhaematemesis and melaena in 41.17% cases, melaena in 47.05% andhaematemesis in 11.76%. In variceal group, 75% of patients presented withboth haematemesis and 25% with melaena. In the erosive gastritis 33.33% presented with haematemesis and 66.66% presented with both haematemesisand melaena. Bleeding gastric ulcer presented in 75% cases with haematemesis and melaena and in 25% cases with melaena³⁷. In the study conducted by Chandan Kumar et al, 68 patients (45.3% out of 150) presented with hematemesis (24 had only hematemesis no melena), 96patients (64%) presented with melena (out of which 53 had only melena nohematemesis), 47 patients (31.3%) had both hematemesis and melena and 29 patients (19.3%) presented with hematochezia, gastropathy, colonic polyp or snake bite (which has been put together under the "others" category³⁹. In the study conducted by Dewan KR et al, 86 patients (71%) had bothhematemesis and melena, 24 patients (20%) had only melana and 10 patients (8.3%) had only hematemesis⁴⁰. The demographic profile depicted by our study is consistent with abovementioned studies. The major sign of UGI bleed in the present study was tachycardia present in 46% (n=164) of patients. Prevalence of other signs was hypotension (n=124,34.5%), pallor (n=116, 32.2%), encephalopathy (n=54, 15%) and icterus(n=38, 10.5%). Shock was present in 16.7% (n=60) of the patients. The causeof shock was variceal bleeding in 75% (n=45) and non-variceal bleeding inremaining 25% (N=15) of patients. In the study conducted by Bessa X et al, hypotension was present in 20%, tachycardia in 30% of patients with upper GI bleed⁴¹. In the study conducted by Dewan KR, 21.7% of patients presented as shock⁴⁰. In the study conducted by Prasad V et al, tachycardia was found in 29% of patients and shock in 39.4% of patients⁴². In the study conducted by Jain J al, pallor was present in 40% of patients⁴³. In the study conducted by Dewan KR, at the time of presentation, 26 patients (21.7%) had shock i.e. systolic blood pressure $< 90 \text{ mmHg}^{40}$.

In our study, of the total 360 participants 25.6% (n=92) had Hb levels below 7g/dL. The mean Hblevels in our patients was 9.2mg/dL. In the study conducted by Jain J et al, Mean Hb was 8.4md/dL and amongthem 33% of patients had Hb<7mg/dL⁴³. In the study conducted by Dewan KR, 41 patients (34.2%) had severe anaemia (Haemoglobin<7gm%) at the time of presentation⁴⁰. In the Study conducted by IrinParveen et al, found mean Hb of the patients tobe 8.65mg/dL³⁴. In our study, mean Rockall was 4.1. Low Rockall (<5) was present in 61.7%(n=222) and high (>5) Rockall was present in 38.3% (n=138). In the study conducted by Dewan KR, mean Rockall was 4.45. Eighty-sixpatients (71.7%) had Rockall score < 5 and 34 (28.3%) had >6⁴⁰.

Conclusion:-

- 1. 25% (n=90) had varicealhaemorrhage and 75% (n=290) had nonvaricealhaemorrhage. Among non-variceal group, 30% (n=106) of the patients had duodenal ulcer, 13% (n=48) had gastric ulcer, 11.6% (n=44) had gastroesophageal malignancy, 5% (n=18) of the patients had gastric erosions, 3.9% (n=14) had Mallory Weiss tear, 2.8% (n=10) had Dieulfoy's lesion, 2.2% (n=8) had stoma site ulcer, 2.2% (n=8) GAVE, 2.2% (n=8) had esophagitis and 2.2% (n=8) had antral gastritis.
- 2. 26% of patients (n=94) with UGI bleed (n=360) were smokers. Allthe smokers in our study were males. .98% (n=92) had non-varicealhaemorrhage.
- 3. 21.7% (n=78) patients took medication. NSAIDS were the most frequently taken medication (16.6%, n=60).
- 4. Comorbidity was present in 37.3% (n=134) of patients. The mostprevalent comorbidity among our patients was hypertension (23.8%,n=86) followed by CLD (16.7%, n=60) and DM (15.5%, n=56).
- 5. The commonest clinical presentation of UGI bleed patients washematemesis and melena (43%, n= 154) cases. The prevalence of otherpresentations is as follows melena (34.4%, n=124), hematemesis(17.2%, n=62) and hematochezia (5.6%, n=20).
- 6. The major sign of UGI bleed in our patients was tachycardia present in46% (n=164) of patients. Prevalence of other signs was hypotension(n=124, 34.5%), hypotension with tachycardia (n=124, 34.5%), pallor(n=116, 32.2%), encephalopathy (n=54, 15%) and icterus (n=38,10.5%).
- 7. 25.6% (n=92) had Hb levels below cut off (Hb<7g/dL). The mean Hblevels in our patients were 9.2mg/dL.
- 8. Shock was present in 16.7% (n=60) of the patients presenting withupper GI bleed. Of the patients with shock, the cause of bleeding wasvaricealhaemorrhage in 75% (n=45) and non-varicealhaemorrhage in25% (n=15).

- 9. Mortality rate associated with UGI bleed in our study was 6.60%(n=24) during hospital stay. Death rate among females was 14.28% (n=11)compared to 4.60% (n=13)among males. Mean age of personswho died was 60.67years against 47.5 years mean age the participants in the study.
- 10. Varicealhaemorrhage was the most common cause of death amongpatients with UGI bleed (83.3%, n=20).All the patients dying of anon-variceal cause had gastroesophageal malignancy.
- 11. Comorbidity was present in 92% (n=22) of people who died against prevalence of 37% (n=134) among study participants.
- 12. Of the total 16.7% (n=60) patients with shock 20 died. Thus, mortalityrate associated with shock was 33.3%.
- 13. Low hemoglobin levels (<7mg/dL) were associated with increased riskof mortality than Hb levels > or = 7mg/dL in our study. 91%[n=22] ofpatients who died had Hb<7. The mortality rate associated with low Hb(<7) was 24% (n=22) against 0.75% (n=2) among patients with Hb>or= 7. Among patients with Hb below 7, 29% (n=27) were femalesagainst 21.4% in the females with UGI bleed.
- 14. Risk of rebleeding among patients in our study was 8% (n=29) duringhospital study. Rebleeding rate among male patients was 8.1% (n=23)and rebleeding rate among female patients was 7.8% (n=6). Varicealhemorrhages were associated with increased rebleeding rates (21%,n=19) than non-variceal hemorrhages (3.7%, n=10). Among patientswho rebled 89.7% (n=26) had high Rockall (>5) and 10.3% (n=3) hadlow Rockall.
- 15. The mean Rockall score among patients in our study was 4.12 (mode1). 61.7% (n=222) had low Rockall score and 38.3% (n=138) had highRockall score. All the patients who died in our study had high Rockall(>5). The mortality rates associated with High Rockall Score was17.4%.
- 16. In our study we followed patients at 15, 30 and 60 days. Among alive336 patients who were discharged from the hospital a total of 1.8%(n=6) patients had rebleeding. 2, 3 and 1 patients had rebleeding on 15,30 and 60 days on follow up. All the deaths due to upper GI bleedoccurred during hospital stay. There were no deaths on 15, 30 and 60day follow up.

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