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Evaluation of Emergency Endoscopic Treatment for Acute Upper Gastrointestinal Bleed in Tertiary Care Referral Centre

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Abstract **Original Research Article**

Introduction*:** The Upper Gastrointestinal Bleeding is one of the most common surgical emergencies that the surgeon encounters. Early diagnosis and accurate decision regarding its management is very important. Present study is done to evaluate using APACHE-II score as a useful tool in assessing the cause and severity of UGI bleed and to evaluate the efficacy of endoscopic interventional procedure. ***Material and Methods: Patients attending hospital with history of acute upper GI bleed are involved in the study. Study duration was 2 yrs. Results were tabulated and interpreted in graphs, tables and pie diagrams and in percentage using SSPS version 16.1. ***Results:*** The results of this study showed the most of the cases were in 4th & 5th (50%) decade of life with males (85.8%) preponderance. The most common etiological cause was esophageal varices (45.6%), 24.4% of the cases were gastric and duodenal ulcer, 16.5% are EMD, 3.9% are malignant growth, 3.9% are MVT, 1.55% cases are Dieulafoy's lesion and etc. The Number of cases that rebleed was more in esophageal varices (10%). Mean APACHE II scores in survivors and patients who died were 8.39 and 17.5 respectively. The patients with an APACHE II score >14 showed mortality. Overall mortality is 2.7%. ***Conclusion*:** APACHE II score is an effective tool in assessing patients with upper GI bleed for early detection, effective therapeutic intervention and predicting mortality.

Keywords: APACHE-II; Endoscopy; Esophageal varices; Upper Gastrointestinal Bleeding.

INTRODUCTION

The Upper Gastrointestinal Bleeding is one of the most common surgical emergencies that the surgeon encounters. Early diagnosis and accurate decision regarding its management is very important. Bleeding from Esophageal or Gastric varices, Duodenal or Gastric ulcer, Gastric erosion, Esophageal tear, Dieulafoy‟s lesions, Gastric Antral Vascular Ectasia (GAVE) and others can present to the clinician with challenging therapeutic problems. Bleeding may be rapid and exsanguinating, requiring urgent treatment for its control and resuscitation of the patient [1].

Peptic ulcer disease is still represent the most common cause of upper GI bleed and others like Esophageal varices, Esophageal tear, Dieulafoy‟s lesions, Gastric Antral Vascular Ectasia (GAVE) accounts for other causes. Available endoscopic managements include Local Epinephrine injection, Heater probes, Mono or Bipolar electrocoagulation, and Cyanoacrylate glue injection etc [2]. In patients with cirrhosis are already in a state of compromised health status. Any additional surgical intervention will increase the morbidity and mortality. So simpler and safer procedures have evolved such as Variceal Band Ligation, Sclerotherapy of varices, Cyanoacrylate glue injection etc., have emerged as emergency intervention of choice and accomplishes immediate control of variceal bleeding in 70% of cases. The mortality in the initial variceal haemorrhage may be up to 50% in untreated patients [3].

This research is undertaken to assess the cause and severity of UGI Bleed, the need for therapeutic endoscopic procedure, and to test the effectiveness of the endoscopic treatment using pre and post test APACHE II score.

MATERIALS AND METHODS

Study Area: This study was carried out in the Department of General Surgery, A.J. Institute of Medical Sciences & Research Centre, Mangalore, India.

Study Population and size: A total number of 150 consenting patients of both the genders aged more than 14 years presenting with acute upper GI bleed admitted in Department of General Surgery, A.J. Institute of Medical Sciences & Research Centre, Mangalore were included. Unstable or co-morbid patients and pregnant women are excluded from the study population.

Study Duration: This study was carried out over a period of 2 years from July 2014 to July 2016.

Study Design: Prospective study.

Ethical Clearance

Prior to the commencement, the study was approved from the Ethical and Research Committee, A J Institute of Medical science, Mangalore.

This is a prospective study. Data was collected using the standard Proforma; the patients satisfying inclusion criteria will be subjected for therapeutic upper GI endoscopy and will be assessed with APACHE II score in terms of prognosis, complications, procedural time and patient recovery

The collected data will be analyzed using the "CHI-SQUARE TEST" to test the significance between pre and post-test APACHE II score. Analysis was done using SPSS software version 16.1. Results were tabulated and interpreted in percentage, graphs, tables and pie charts.

OBSERVATION AND RESULTS

In the present study, in 150 patients, 127 patients were satisfied the inclusion criteria are were included in the study. The mean age of presentation was 50yrs (15 to 87yrs) (n=42) and 7.8% were more than 70yrs old (Figure-1). 85.8% of the patients were male (n=109) and 14.2% (n=18) were female (Figure-2). A history of chronic alcohol consumption seen in 62.2% of the patients (n=79), most of them are male (Figure-3), APD in 22% (n=38), similar illness seen in 18.9% (n=24) of the patients (Figure-4). Presenting symptoms included one or more of the following: Haematemesis only in 64.5% (n=82), Malena only in 22.5% (n=28), Haematemesis and malena in 14.1% (n=18) (Figure-5).

Examination signs included one or more of the following: Anaemia in 54.3% (n=69), Jaundice in 19.6% (n=25) (Figure-6), Splenomegaly in 33% (n=42) of alcoholic liver disease patients, ascities in 17.3% (n=22), Non-specific Hepatomegaly in 14.9% (n=19) of non-alcoholic (Figure-7).

Laboratory data included one or more of the following: Mild anaemia in 29.9% (n=38), moderate anaemia in 26.7% (n=34), and severe anaemia in 16.4% (n=28) of the patients (Figure No. 8). Elevated LFT seen in 40.9% (n=52), and high serum creatinine seen in 22.8% (n=29) of the patients (Figure-9).

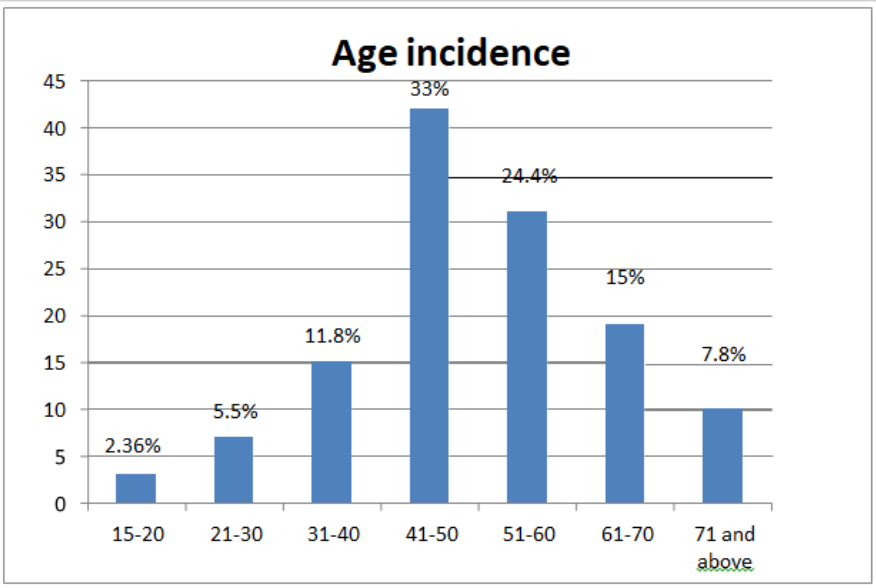

Figure-1: Shows incidence of UGI bleed in different age group. The mean age was 50yrs (15 to 87yrs) and 7.8% were more than 70yrs old patients

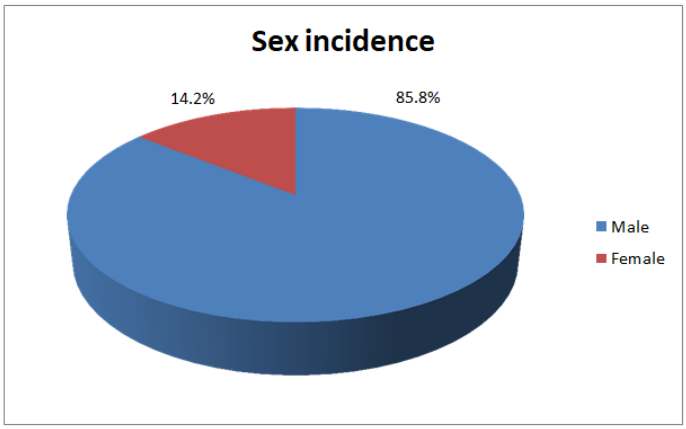

Figure-2: Shows incidence of UGI bleed in male and female patients

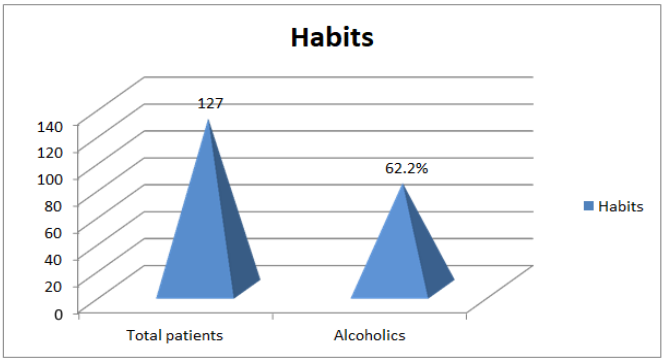

Figure-3: Shows number of patients with chronic alcoholism presenting with acute UGI bleed. A history of chronic alcohol consumption seen in 62.2% of the patients, most of them are male

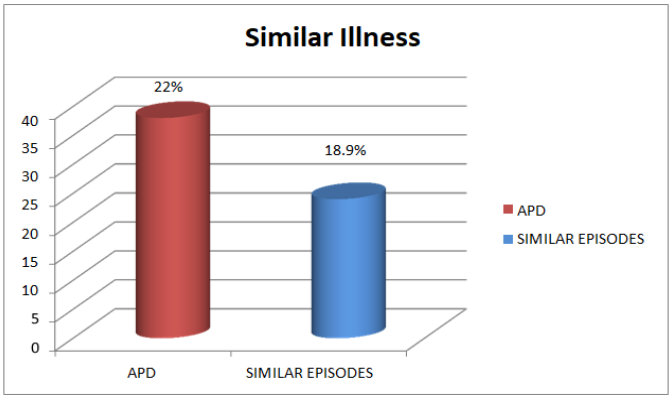

Figure-4: Shows past history of patients presented with acute upper GI bleed. 22% of the patients had history of acid peptic disease. 18.9% of the patients had similar history of UGI bleed in the past

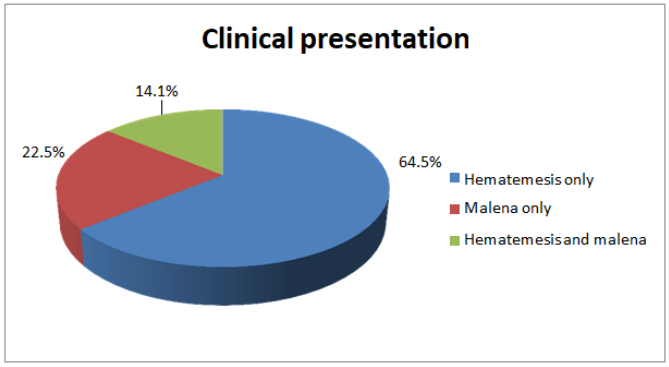

Figure-5: Shows common symptoms in patients presenting with UGI bleed. 64.5% of the patients had hematemesis alone. 22.5%% of them had melena alone. The rest 14.1% had both symptoms

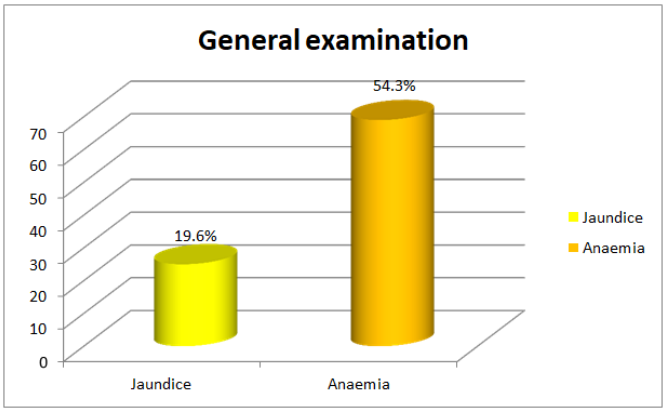

Figure-6: Study subjects with pallor and jaundice. 54.3% and 19.6%

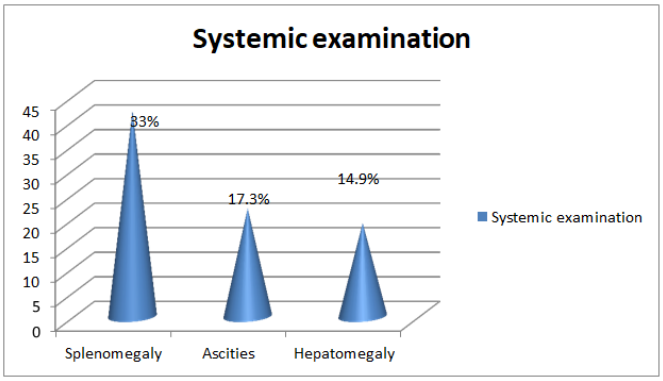

Figure-7: 33% of the patients had palpable splenomegaly. 17.3% ascites. 14.9% of the patients had asymptomatic hepatomegaly in non-alcoholics

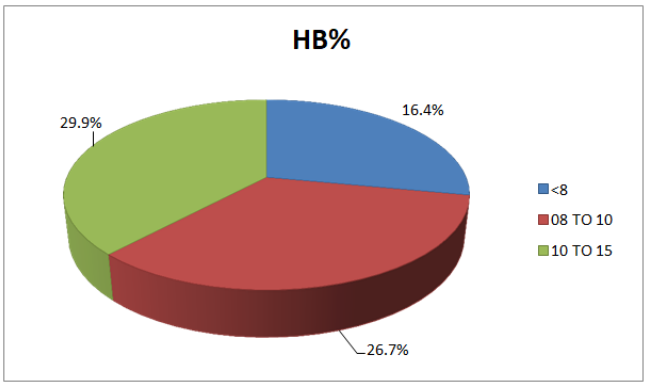

Figure-8: Shows grades of anaemia in patients with acute UGI bleed. 29.9% with mild anemia. 26.7% moderate anemia, 16.4% of them were found to be severely anaemic

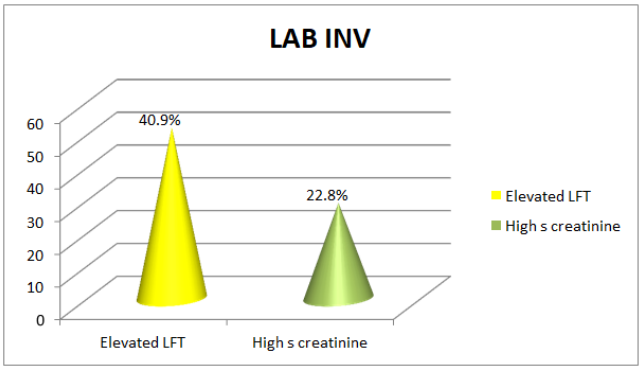

Figure-9: Shows status of LFT and serum creatinine in patients with acute UGI bleed. 40.9% of the patients had abnormal total bilirubin. 22.8% of the patients had high serum creatinine values

The primary lesion responsible for bleeding was established by endoscopy in most of the cases as depicted in Figure-10. Most of the cases were found to have esophageal varices 45.6%, 24.4% of the cases were found to have Gastric, Esophageal, and Duodenal ulcers, 16.5% were found to have Erosive Mucosal Disease (EMD), 3.9% were found to have malignant growth in stomach or esophagus, 3.9% were found to have Mallory Weiss tear, 1.5% was found to have ? Dieulafoy‟s lesion, 1.5% was found to have GAVE, 1.5% was found to have bleeding gastric polyps, and 0.8% was found to have schatzki‟s ring (incidental finding).

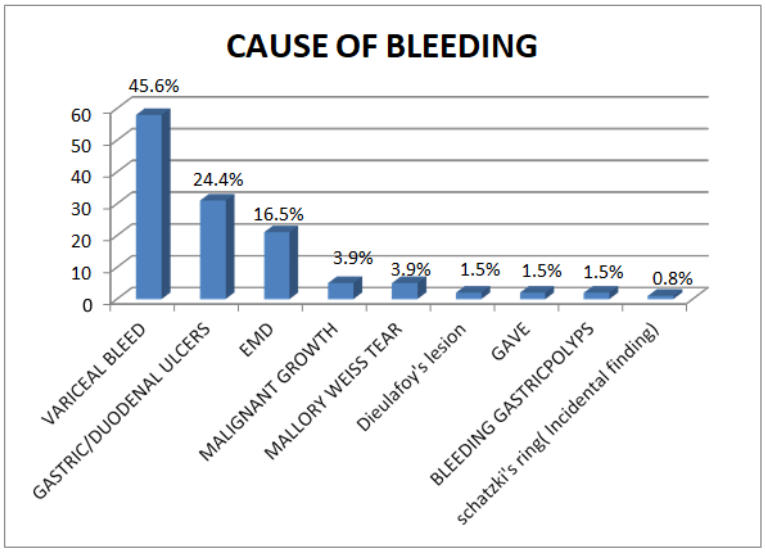

Figure-10: Shows Causes of acute UGI bleed

Of the 58 cases of esophageal varices, they are graded in to four groups. 8.6% of the patients had grade 1 varices. 10.3% of the cases had grade 2 varices. Another 67.2% had grade 3 varices. 13.7% had grade 4 varices.

Banding, sclerotherapy, injection of adrenaline, clips and polypectomy was used appropriately as per the patient presentation in our study to treat the patients with Upper Gastrointestinal bleed as depicted in Figure-11. Banding was done in 38.5% of the cases. Sclerotherapy was done in 5% of the cases. Adrenaline injection was done in 6.3% of the cases. Polypectomy was done in 0.8% of cases. Clips applied in 4% of the cases. Biopsy was taken from 5% of the cases

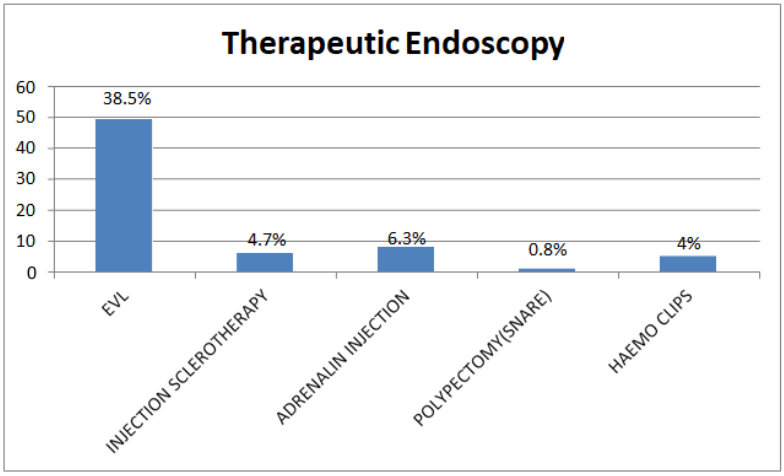

Figure-11: Shows Therapeutic endoscopic treatment in acute UGI bleed.

Figure-12 shows APACHE II score at the time of admission in patients presenting with UGI bleed. Among 127 patients most of the patients had score between 5 and 14.

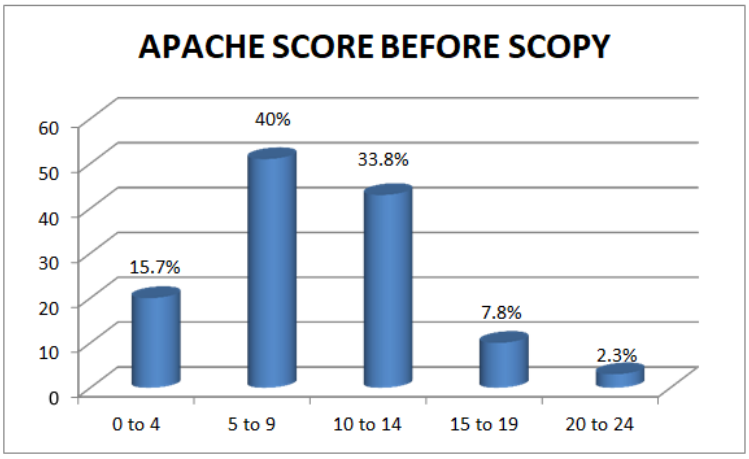

Figure-12: Shows APACHE II score at the time of admission

Figure-13 shows APACHE II score after 24hrs in patients with acute UGI bleed. After 24hrs most of the patients from higher scores came back lower score, shows effect of therapeutic endoscopy in acute UGI bleed.

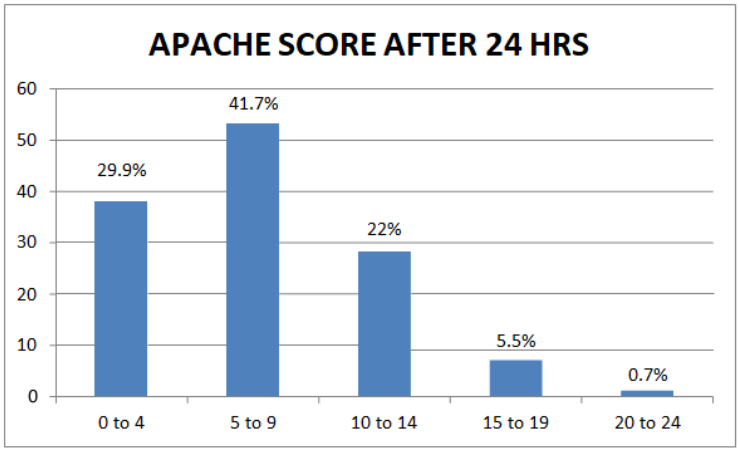

Figure-13: shows APACHE II score after 24hrs

All the cases included in the study were taken up for emergency therapeutic endoscopy. Endoscopy was able to detect cause for bleeding in 98% of the patients. Re-bleeding was seen in 3 cases in 24hrs as given below. Table-1 Shows comparing the significance of pre and post-test APACHE II score.

Table-1: Shows comparing the significance of pre and post-test APACHE II score

APACHE II SCORE	0-4	5-9	10-14	15-19	20-24
BEFORE SCOPY	20	51	43	10	3
AFTER SCOPY	38	53	28	7	1

CHI-SQUARE STATISTIC IS 10.3231, P VALUE IS 0.03533, SIGNIFICANT IF P< 0.05

This study examined the prognostic value of the APACHE II scoring system in patients undergoing emergency upper GI scopy. Mean scores in survivors and patients who died were 8.39 and 17.5 respectively. 4(male) patients among 60 esophageal varices are died. None of the patients with an APACHE II score < 14 died. Overall mortality is 2.7%. APACHE II score is useful when measuring the severity of the acute disease and predicting the outcome in these patients.

Patients were followed up with a repeat UGI scopy. Post banding residual varices was seen 10% of the cases. After sclerotherapy complete obliteration of varices was seen in 28% of the cases and partial obliteration was seen in 71.5% of cases

DISCUSSION

Upper GI Endoscopy is now a routinely done procedure. This study was undertaken to evaluate emergency endoscopic treatment for acute upper gastrointestinal bleed in A.J. Institute of Medical Sciences, Mangalore. In out of 150 patients, 127 were included in the study, rest 23 patients excluded from the study.

Majority of the patients with upper gastrointestinal bleeding belonged to the older age group with a peak incidence in 41-50 years age group followed by 30-40 years. 85.8% of the patients were males the rest were females. The reason for this is attributed to the fact that nearly half the number of patients had alcoholic liver disease. 64.5% of the patients presented with hematemesis only and 22.5% presented with melena. The rest 14.1% presented with both the symptoms. In the present study most common cause identified for upper GI bleeding was esophageal varices; which was seen in 45.6% of the cases. The second most common cause was gastric and duodenal ulcers seen in 24.4% of the cases. This is in contrast with the observation by Iglesias et al[4] who found more than one cause in 45.95% of the cases. The most common cause was Acute Gastritis; which was seen in 36.14 % of the cases. Gastric ulcer was the second most common cause seen in 16.3% followed by Acute Esophagitis is 9.20%. Duodenal ulcer was seen in 7.28% and esophageal varices in 7.2%. In study by Iglesias et al., [4], only 3.76% of cases failed to show any cause.

The chances of finding the real cause of bleeding are dependent upon the time interval between the onset of bleeding and endoscopy. Early endoscopy was performed in 15 cases. 93.3% of these showed a potential source of bleeding. Positive evidence of bleeding which are stigmata of recent haemorrhage like Spurting, ooze, visible vessel, adherent clot; Which was found in 80%. A potential source of bleeding was found in more than 90% in all the 5 series but evidence of bleeding varied from 56% to 81% [5-7]. With increasing time interval between the onset of bleeding and endoscopy, the diagnostic accuracy was found to decrease. Potential source was identified in only 80% of patients and Evidence of bleeding was found in only 50%. The results of emergency endoscopy in other series were similar to the present one.

The results of late endoscopy are in contrast with those of Allen et al., [5] where a Potential source of bleeding was identified in only 33%. This discrepancy in the results of different series is because the diagnostic accuracy of the endoscopy series varies with various factors like improved technique in the recent years.

The information gathered during emergency endoscopy also provides important Prognostic information. In our series total re bleeding rate was 14%, 10% being from varices and the rest 4% from esophagitis and gastritis. 1n the older series, the total rebleeding rate was found in 16%. Of these 13.33% were from varices, 1.33% from gastric ulcers and gastritis each. All these cases had stigmata of recent haemorrhage indicating a higher risk of re bleeding. This observation correlates with the one made by Gilbert D. A et al., [1] in "The National ASGE Survey on upper GI bleeding." In 1981 and Foster D. N et al., [8] where they found that varices are most likely to than ulcers and patients likely to rebleed are the ones with stigmata of recent hemorrhage and had a higher risk of mortality. Risk of rebleeding was seen more in large varices. In the present series majority of the varices which rebleed were grade 3 and grade 4.

Esophageal varices were found in 58 cases. Banding was done in 49 patients and injection sclerotherapy was done in 6. Since the danger of bleeding was greatest when the varices are large, banding was done in most of the varices. The results were consistent with that of the previous series. The complication rate was less than 1%. This is similar to that of the A8613 survey on upper GI bleeding [2] where the rate was 0.9%. Other endoscopic series have shown complication rates ranging from 0.7% to 8% [1, 3]. The selection of patients is also very important. Endoscopy should not be done in patients with uncontrolled agitation and those with who have not been hemodynamically stabilized. Regarding the outcome of cases, there was a significant decrease in mortality owing to the in advent use of endoscopy in both diagnosis and therapeutic procedures.

The results of this study is similar to the results of the ASGE bleeding survey and other previously published data. However longer follow up and repeated upper GI scopy can be repeated few months later to know the effect of banding and sclerotherapy. Various other methods of therapeutic endoscopy can also be considered for further studies. This study examined the prognostic value of the APACHE II scoring system in patients undergoing Emergency operations for bleeding peptic ulcer. There were 96 operations for gastric ulcers and 58 for duodenal ulcers. The mean scores in survivors and in patients who died were 10.8 and 17.5 respectively. None of the 66 patients with a n APACHE II score < 11 died, while the mortality rate in those scored > 10 was 22 per cent. In patients scored > 10 non-respective procedures carried less risk of mortality than Gastrectomy.

The APACHE II score is useful when measuring the severity of the acute disease and predicting the outcome in these patients. If used in daily practice it may assist the Surgeon in stratifying patients into a low-risk group (score < 11) in which major operations are well tolerated and outcome is favorable and a high-risk group (score > 10) in which the risk of mortality is high and the performance interventional procedures of lesser magnitude is probably more likely to improve survival.

CONCLUSION

This study evaluated the prognostic value of the APACHE II score in 127 patients undergoing emergency upper GI scopy. Mean score is 8.39 (range between 4 and 24). Those who had scored less than 8.39

patients recovered and discharged early, less blood transfusion, low morbidity compared to the patients having score more than 8.39. 4 male patients among 58 esophageal varices died. Mean score in the patients who died was 17.5. None of the patients scored below 8.39 died. Rest all recovered. Those who died had chronic illness and intervened late compared to others. It is statistically significant (Z score -146.5, P value < 0.00001. P value is significant if < o.5).

APACHE II score is an effective tool in assessing patients with upper GI bleed for early detection, effective therapeutic intervention and predicting mortality. Early effective and appropriately directed therapeutic endoscopy will drastically reduce morbidity and mortality in patients with acute upper GI bleed.

SUMMARY

Acute UGI haemorrhage is a common clinical problem with diverse manifestations. Bleeding can range from trivial to massive and can originate from anywhere in the UGI tract. Management of these patients often involves a multidisciplinary team.

The importance of an early endoscopic intervention cannot be over emphasized as this has drastically reduced the mortality and morbidity associated with it. In addition to aiding in the resuscitation of the unstable patients, the surgical Endoscopist also helps in diagnosis and initiation of therapy. Improvements in the managements of such patients primarily by early endoscopy and directed therapy have significantly reduced the length of hospitalization. APACHE II score is useful when measuring the severity of the acute disease and predicting the outcome in these patients. Today, the patients requiring surgical interventions have reduced owing to effective and timely use of therapeutic endoscopy.

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