



Banding in Control of Upper Gastrointestinal Bleeding

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Abstract: Gastrointestinal (GI) bleeding occurs from the mouth, esophagus, stomach, small intestines, large intestines to the anus. Variceal bleeding is a normal and severe side-effect of portal hypertension. It was a prospective analytical study conducted among 110 cases of acute gastrointestinal bleeding cases admitted in department of general surgery in a tertiary healthcare institute during December, 2013 to June, 2015. The 55 patients for banding and 55 patients who has undergone previous sclerotherapy were selected in the present study. Majority of the population were males in both the groups A and B (67.27 and 61.81%) whereas there were 32.72 and 38.18% females in group A and B, respectively with Mean age 49.58 ± 15.6 years. In the present study, we observed that in group A, 83.63% of the cases became free from bleeding. In group B, the number was relatively lesser (63.63%). The prevalence of re-bleeding was found to be more among cases enrolled in group B (34.54%). Endoscopic banding procedure was found to be better as compared to sclerotherapy for management of gastrointestinal varices.

INTRODUCTION

Gastrointestinal (GI) bleeding occurs from the mouth, esophagus, stomach, small intestines, large intestines to the anus (Ghassemi and Jensen, 2013). Microscopic bleeding levels can cause anaemia over time and overdose bleeding can lead to death (El-Tawil, 2012). Upper Gastrointestinal (GI) bleeding, described as bleeding from the proximal source of Treitz ligament (Chen and Freeman, 2011). It is a serious and potentially life-threatening GI emergency with a broad spectrum of clinical seriousness, varying from mild bleeding to severe exsanguinating haemorrhage which is correlated with substantial morbidity which mortality (Anand *et al.*, 2014). Gastrointestinal haemorrhage can be challenging for any clinician. The present study was conducted to

compare the outcome of banding to the outcome of sclerotherapy in control of bleeding in upper gastrointestinal bleeding.

Aim and objectives

Aim: To study the outcome of banding in control of bleeding in upper GI bleeding by endoscopy.

Objective: To study the outcome of banding in control of bleeding in upper GI bleeding by endoscopy. To compare the outcome of banding to the outcome of sclerotherapy in control of bleeding in upper gastrointestinal bleeding.

Literature review: Hreinsson *et al.* (2013) in their study found that duodenal ulcer (20.5%), Gastric ulcer (14.7%), Mallory-Weiss tear (12.2%), Esophagitis (9.6%) were the

commonest causes of upper GI bleeding. They also found that NSAIDs 20%, Warfarin 15% LDA 40%, LDA+SSRIs 8%, PPIs 40%, SSRI drugs 16% were the commonest drugs responsible for upper GI bleeding. Anand *et al.* (2014) in their study observed that the majority of the patients had both hematemesis and melena (68.11% patients), 20.95% of the patients presented with hematemesis only and 10.94% patients presented with melena only. They found oesophageal varices (43.54% patients) and gastric erosion/gastritis in 15.20% patients.

From the possible aetiologies of UGIB, Peptic Ulcer disease (PUD) accounts for 40-50% of the cases. Of those, the majority is secondary to duodenal ulcers (30%). PUD can be associated with NSAIDs, Helicobacter pylori and stress-related mucosal disease. Aside from PUD, erosive esophagitis accounts for 11%, duodenitis for 10%, Varices 5-30% (depending if the population studied have a chronic liver disease), Mallory-Weiss tear 5% to 15% and vascular malformations for 5% (Guardiola *et al.*, 2013).

Hematemesis caused by bleeding from a duodenal ulcer may present in an individual who has a history of ulcer and may have some history of vomiting of blood or passing of coffee-ground stools. Indeed, bleeding from duodenal ulceration may not show a large quantity of upper GI bleeding but may present with large amounts of tar colored stools which is indicative of the blood being acted upon by hydrochloric acid from the stomach. A rapidly bleeding duodenal ulcer that requires surgical intervention may reflux blood and bile through the pylorus into the stomach. Blood and bile may then be aspirated through the gastric tube. The second major cause of upper GI bleeding is oesophageal and gastric varices caused by cirrhosis of the liver. Blood is backed up through the coronary vein and the patient vomits amounts of blood.

MATERIALS AND METHODS

The present prospective analytical study was conducted with cases of acute gastrointestinal bleeding cases admitted in department of general surgery in a tertiary healthcare institute. Duration of the study was 18 months (November, 2013 to June, 2015). Patients older than 18 years and with signs of upper GI bleeding for >24 h (confirmed hematemesis and melena). Those who give consent for the study. Patients with prior endoscopic treatment. Patients with previous surgical or medical treatment for portal hypertension. All patients with diagnosed coagulation disorders. The 110 patients fulfilling the inclusion criteria were included in the present study. The 55 patients for banding and 55 Patients who has undergone previous Sclerotherapy were selected in the present study. According to the methodology,

patients in Group A were subjected for sclerotherapy using 3% setrol (sodium tetradecyl sulfate) diluted with saline to 1% solution. Patients included in group B were subjected for banding technique to control the bleeding. Clinical parameters from both groups were compared using appropriate statistical tests in terms of effectiveness, complications, procedural time and patient recovery. The data was collected using pre-designed, pre-validated standard case record proforma. The data was entered using Microsoft Excel software and analyzed using SPSS statistical package version 21. The data was presented in the form of tables and graphs for frequency analysis. Suitable statistical tests were used in order to find significance between observations. The $p < 0.05$ was considered to be significant.

RESULTS AND DISCUSSION

This study was done under the department of general surgery, among the 110 cases of oesophageal varices, out of them 55 cases were managed using banding and 55 cases were managed using sclerotherapy.

In the present Table 1 shows, majority of the cases were males in both the Groups A and B (67.27 and 61.81%) whereas there were 32.72 and 38.18% females in Group A and B, respectively.

In this study, observed that majority of the cases of oesophageal varices belonged to age group of 36-45 years in both Groups A (30.90%) and B (25.45%), followed by 46-55 years in both Groups A (21.08%) and B (23.63%). The total age wise distribution is given in Table 2.

In the present study, we assessed the cases according to their medical history. We observed that there was 3 cases (5.45%) of coronary artery disease were there, followed by a single case (1.81%) each of heart failure, renal failure, malignancy (Table 3).

In the present study, we assessed the study subjects according to their hemoglobin levels. In group A,

Table 1: Distribution according to gender

Gender	Group A		Group B	
	No of cases	Percentage	No of cases	Percentage
Male	37	67.27	34	61.81
Female	18	32.72	21	38.18
Total	55	100.00	55	100.00

Table 2: Distribution according to age

Age distribution	Group A		Group B	
	No of cases	Percentage	No of cases	Percentage
18-25	2	3.64	3	5.45
26-35	7	12.72	6	10.90
36-45	17	30.90	14	25.45
46-55	12	21.08	13	23.63
56-65	6	10.90	8	14.54
66-75	7	12.72	8	14.54
>75	4	7.27	3	5.45

Table 3: Past medical history

Medical history	No. of cases	Percentage
Heart failure	1	1.81
CAD	3	5.45
Renal failure	1	1.81
Malignancy	1	1.81

Table 4: Grades of anaemia

Grades of anemia	Group A		Group B	
	No of cases	Percentage	No of cases	Percentage
Normal	8	14.54	10	18.18
Mild	42	76.36	38	69.09
Moderate	3	5.45	5	9.09
Severe	2	3.63	2	3.63
Total	55	100.00	55	100.00

we observed that majority of the cases had mild anemia (76.36%), followed by normal hemoglobin levels (14.54%), followed by 5.45% cases of moderate anemia and 3.63% cases of severe anemia. In group B, we observed that majority of the cases had mild anemia (69.09%), followed by normal hemoglobin levels (18.18%), followed by 9.09% cases of moderate anemia and 3.63% cases of severe anemia (Table 4).

The present study was conducted under the department of general surgery, among the 110 cases of oesophagealvarices, out of them 55 cases were managed using banding and 55 cases were managed using sclerotherapy. Majority of the population were males in both the Groups A and B (67.27% and 61.81%) whereas there were 32.72 and 38.18% females in Group A and B, respectively. We observed that majority of the cases of oesophagealvarices belonged to age group of 36-45 years in both Groups A (30.90%) and B (25.45%), followed by 46-55 years in both groups A (21.08%) and B (23.63%).

Luz *et al.* (2011) observed that the mean age of study subjects among band ligation group was 54.48 years while that in sclerotherapy group was 50.24 years.

In their past medical history, we observed that there was 3 cases (5.45%) of coronary artery disease were there, followed by a single case (1.81%) each of heart failure, renal failure, malignancy.

Gimson *et al.* (2003) in their study observed that, re-bleeding was less common in the banding ligation group than in the sclerotherapy group (16 (30%) vs. 26 (53%), $p < 0.05$). El Newehi, *et al.*, in their study observed re-bleeding in 25% cases after EVL and 37% after sclerotherapy.

Shafqat *et al.* (1998) in their study observed that Haemostasis in acute bleeding, although better achieved in group A, did not reach statistical significance (96% vs. 78% $p > 0.05$). Recurrent bleeding was seen in similar percentage of patients (29 vs. 28% $p > 0.05$) in

both groups. Oesophagealvarices and treatment induced ulcers were the source of re-bleeding in both groups.

Recurrent bleeding rate was comparable in both groups; oesophagealvarices and bleeding ulcers were responsible in equal proportions. Re-bleeding rate in Group A (BL) as seen in our study was similar to that reported by others but higher re-bleeding rates were seen with sclerotherapy.

Jensen *et al.* (1993) reported re-bleeding rates of 30 vs. 35% in their patients receiving band ligation and sclerotherapy, respectively, these results are similar to our study. Rapid obliteration of varices with lesser number of sessions seen in band ligation in our study corroborates well with previous reports, Recurrence of varices in band ligation and sclerotherapy did not have statistical difference, although increased recurrence in band ligation was seen by Hou *et al.* (1995). Others have reported a variable recurrence rate of 20-68% after initial eradication with sclerotherapy. Stiegmann, *et al.*, over a follow-up of 10 months, reported recurrence rate of 50% in SCL group and 33% in BL group.

CONCLUSION

Early endoscopy was useful in cases of upper gastro-intestinal bleeding cases. Majority of the population presenting with upper gastro-intestinal bleeding were males as compared to females. The mean age of the patients presenting with perforation peritonitis in the given study was observed to be 49.58 ± 15.6 years. In Group A, we observed that majority of the cases had mild anemia (76.36%), 5.45% cases of moderate anemia and 3.63% cases of severe anemia. In Group B, we observed that majority of the cases had mild anemia (69.09%), 9.09% cases of moderate anemia and 3.63% cases of severe anemia. 32.725 cases in group A and 29.09% cases in group B were presented in shock. 34.54% cases in group A and 38.18% cases in group B reported adherent clot. 10.9% cases (Group A) and 9.09% cases (Group B) reported spurting vessel while 3 and 4 cases in Group A and B respectively reported oozing vessel. In the present study, we observed that in Group A, 78.18% of the cases became free from bleeding. In group B, the number was relatively lesser (54.54%). The prevalence of re-bleeding was found to be more among cases enrolled in Group B (34.54%). When we assessed mortality in both the groups, we observed that the mortality was more in Group B (10.9%) as compared to Group A (5.45%). Hence, endoscopic banding procedure was found to be better as compared to sclerotherapy for control of upper gastrointestinal bleeding cases.

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