To Compare the Outcomes of Emergency Procedures Versus Elective Procedures for the Treatment of Upper GI Hemorrhage Resulting from Portal Hypertension

Abdul Ghani, Areej Zehra Alam, Shua Nasir, Muhbat Ali, Lal Shehbaz, Zain Ali

ABSTRACT

Objective: The aim of this study is to compare the outcomes of emergency procedures versus elective procedures when it comes to surgical procedures performed for the treatment of upper GI hemorrhage resulting from portal hypertension. **Methods:** The type of study is a retrospective review of n= 221 patients who came to us with the complaint of upper GI bleeding as a result of portal hypertension and treated with a surgical procedure (either elective or emergency procedure), the study is conducted with data from April 2011 to December 2015 from a tertiary care center in Karachi, Pakistan. Various variables such as patient's age, gender, complete history, length of stay in the hospital, postoperative complications such as infection, re-bleeding etc. were noted along with the mortality rate of the patients. Statistical analysis was done via SPSS version 23. **Results:** The patients population consisted of n= 221 patients of which n= 140 (63.34%) were male and n=81 (36.65%) were female having a mean age of 48.1 ± 12.5 years. N= 154 patients belonged to Group A which is the patients who underwent elective surgery, while n= 67 patients belonged to group B the emergency surgery group. The patients, age, gender, history and child pugh classification did not show any significant difference among the two groups. N= 11 (16.41%) patients had complications in the emergency surgery group, and n= 18 (11.68%) patients suffered from complications in the elective surgery group having a p value of >0.05. Among the two groups under study, n= 6 (3.89%) patients died in the elective surgery group and n= 8 (11.94%) patients died in the emergency surgery group. **Conclusion:** According to the results of our study patients belonging to Grade A and B of the child pugh classification can be treated as an emergency surgical procedure as compared to the elective procedure as both have similar rates of complications and mortality, but for patients belonging to Grade C care should be taken as there is a high rate of complication and mortality with emergency procedures.

Keywords: Upper gastrointestinal hemorrhage, elective surgery, emergency surgery, esophageal varices.

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INTRODUCTION

GI bleeding is a major complication of portal hypertension with a high incidence of mortality, development of varices and subsequent hemorrhage.[1] During an episode of variceal bleed, which is an acute emergency, a patient has to be stabilized hemodynamically, is provided antibiotics and vasopressor support, before attempts are made to control the ensuing episode of hemorrhage.[2,3] Endoscopy is both diagnostic and therapeutic, however if endoscopic attempts fail to control the bleeding, surgical approach is required.[4,5,6] The surgical procedure used for variceal hemorrhages is spelenectomy, with devascularization of the peri esophagogastric vasculature, and according to authors this procedure should be performed as an elective surgery versus as an emergency procedure, as in the emergency setting this procedure has increased mortality and associated complications.[7] The mortality rate is as high as 30% during such procedures due to hemodynamic stability and hemorrhagic shock which results in hypo perfusion of the organ system. But some authors believe the procedure should be performed promptly as any delay might cause more complications such as shock, renal and liver failure and increase mortality.[8] However there is no definitive agreement upon the time of surgery among the surgical sciences community, the aim of our study is to compare the outcomes of emergency procedures versus elective

procedures when it comes to surgical procedures performed for the treatment of upper GI hemorrhage resulting from portal hypertension.

METHODOLOGY

The type of study is a retrospective review of n= 221 patients who came to us with the complaint of upper GI bleeding as a result of portal hypertension and treated with a surgical procedure (either elective or emergency procedure), the study is conducted with data from April 2011 to December 2015 from a tertiary care center in Karachi, Pakistan. Various variables such as patient's age, gender, complete history, length of stay in the hospital, postoperative complications such as infection, rebleeding etc were noted along with the mortality rate of the patients. The inclusion criteria was all the patients who were treated for upper GI bleeding from portal hypertension only and treated as elective or emergency operations. Patients with other causes of upper gastro intestinal hemorrhage were excluded from the study. The patient division was as follows n= 154 patients belonged to Group A which is the patients who underwent elective surgery, while n= 67 patients belonged to group B the emergency surgery group. All the patients were operated at a large tertiary care center in Karachi Pakistan under general anesthesia following standard surgical procedures.[9] Statistical analysis was done via SPSS version 23, independent 2 sample t test was utilized to compare the differences in the measurement data, and Pearson chi square test was used to compare the numerical data. A p value of less than 0.05 was considered as statistically significant.

RESULTS

The patients population consisted of n= 221 patients of which n= 140 (63.34%) were male and n=81 (36.65%) were female having a mean age of 48.1 +/- 12.5 years and a range of 29 to 78 years. N= 154 patients belonged to Group A which is the patients who underwent elective surgery, while n= 67 patients belonged to group B the emergency surgery group. The patients were classified according to the child pugh score classification system, n= 90 patients belonged to Grade A, n= 46 belonged to grade B, n= 18 belonged to grade C in the elective surgery group, while n= 38 cases belonged to grade A, n= 19 belonged to grade B and n= 10 belonged to grade C in the emergency surgery group respectively. The patients, age, gender, history and child pugh classification did not show any significant difference among the two groups. N= 11 (16.41%) patients had complications in the emergency surgery group, and n= 18 (11.68%) patients suffered from complications in the elective surgery group having a p value of >0.05. However no significant difference was found among the patients who belonged to the same child pugh classification grade in the two groups having a p value of >0.05, but among the grades, patients belonging to grade C suffered from more complications as compared to the patients belonging to the other two grades having a p value of <0.05. Refer to table 1.

Table 1: Postoperative complications in the elective surgery and emergency surgery group

Complications	Emergency procedure n= 67			Elective procedure n= 154		
	Grade A n= 38	Grade B n= 19	Grade C n=10	Grade A n= 90	Grade B n= 46	Grade C n=18
Hepatic Failure	0	1	3	0	1	4
Portal thrombosis	0	0	0	2	1	0
Ascites	1	0	1	0	0	1
Intraperitoneal hemorrhage	0	0	1	1	0	2
Wound infection	0	1	0	2	1	0
Pleural infection	1	0	0	0	0	0
Subphrenic infection	0	0	2	1	1	1
Total of the groups	2 (5.26%)	2 (10.52%)	7 (70%)	6 (6.66%)	4 (8.69%)	8 (44.44%)
Total overall	11 (16.41%)			18 (11.68%)		

The mean length of hospital stay in the elective surgery group was 19.6 ± 5.1 days, and in the emergency surgery group was found to be 12.5 ± 6 days, which is statistically significant, having a p value of <0.05 respectively. Among the two groups under study, n= 6 (3.89%) patients died in the elective surgery group and n= 8 (11.94%) patients died in the emergency surgery group, no patients died in both the groups who belonged to Grade A of the child pugh classification, while in grade B n=4 patients died in elective group, and n= 3 patients died in emergency surgery group, while in grade C, n=2 patients died in elective surgery group and n= 5 patients died in the emergency surgery group. The causes of death were as follows, heart failure in n= 7 patients, systemic organ failure in n= 4 patients, Blood loss and disseminated intravascular coagulation in n= 3 patients. In both the groups patients belonging to grade B showed similar rates of mortality having a p value of >0.05, and it was also noted that in grade C there were more deaths in the emergency surgery group as compared to the elective surgery group but this difference was not found to be statistically significant having a p value of >0.05, and in both the groups Grade C had higher rates of mortality as compared to the other two groups.

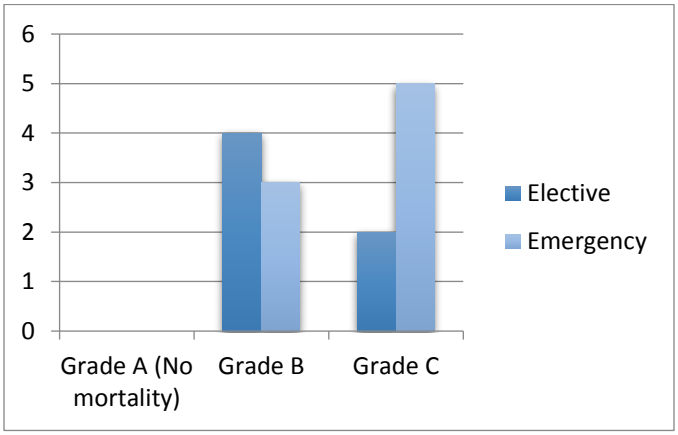

Figure1: Mortality rate of patients in the elective surgery and emergency surgery group

DISCUSSION

The objective of our study was to compare the rates of complications in surgeries performed for GI bleeding occurring due to portal hypertension, and guide the future surgeons to make better decisions keeping in mind the complications and mortality rates of the surgeries performed as elective procedures and as emergency procedures. The initial approach to acute upper gastrointestinal hemorrhage is non-surgical procedures, such as drugs, antibiotics and endoscopic procedures,[11,14,15] but in refractory cases surgery is required. Procedures such as balloon tamponade have been used by surgeons around the globe, but it has some serious complications which limits its use, such as necrosis, rupture of the esophagus, aspiration pneumonia and need for expertise and technicians.[4,5,6] According to the results of our study patients who present with upper gastrointestinal hemorrhage and belonging to Grade A and B of the Child Pugh classification and treated with either emergency or elective procedure, showed the same complications and rate of mortality, therefore in case of uncontrollable bleeding it is suggested that patients be treated as emergency surgical procedure, which is of prime importance in saving the life of the patient and avoid hemodynamic instability, and also according to our study the mean length of hospital stay is also less for emergency procedure which is also a big advantage. However for patients belonging to grade C of the child pugh classification patients had a complication rate of 44.44% and 70% in the elective surgery group and emergency surgery group respectively. The complication rate and mortality rate in patients belonging to grade C in both the groups is higher than the patients belonging to grade A and B combined for both the groups, thus suggesting that the survival is dependent on the function of the liver.[4] According to Sztogrin and Tiuca patients who present with advanced esophageal varices suffer from various other complications such as blood disorders, poor nutritional status and hepatic encephalopathy which has adverse effects on the mortality and morbidity.[12] According to Bari et al they also found that surgical procedures yielded poor results for patients belonging to grade C which is basically due to the poor functioning of the liver in these patients.[1] We also found that patients undergoing emergency surgical procedures and belonging to grade C had higher rates of complications and mortality which is also in line with the other studies. While some authors are of the opinion that patients belonging to grade C should not be operated upon in light of the high rate of mortality,[13] as the act of the surgical procedure itself does more damage to the liver. But in our opinion emergency surgical procedure should be performed on these patients if the surgical team is well equipped and trained in the peri operative treatment and emergency operation, and if the bleeding cannot be controlled by any other means, and patients have no other contraindications for the surgical procedure. But our study also had some limitations that is the sample size was small, and a large multi centric study with more patients of Grade C would

prove the conclusion with conviction, we suggest more studies be carried out in the future to further the field of gastrointestinal surgery.

CONCLUSION

According to the results of our study patients belonging to Grade A and B of the child pugh classification can be treated as an emergency surgical procedure as compared to the elective procedure as both have similar rates of complications and mortality, but for patients belonging to Grade C care should be taken as there is a high rate of complication and mortality with emergency procedures.

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