

EFFICACY OF SINGLE SESSION OF HISTOACRYL INJECTION IN ACHIEVING HEMOSTASIS IN PATIENTS PRESENTED WITH ACUTE UPPER GASTROINTESTINAL BLEEDING SECONDARY TO GASTRIC VARICES

ABBAS KHAN, ABBAS MASOOD, FAHIM ULLAH KHAN, HASHMATULLAH KHAN
 MUHAMMAD KAMRAN HASSAN, MUSHTAQ AHMAD, AAMIR GHAFOR
 Department of Gastroenterology, MTI, Lady Reading Hospital, Peshawar.

ABSTRACT

Background: Gastric variceal bleed is one of the most dreadful emergency carrying high mortality without intervention. Gastric varices are difficult to diagnose and their treatment can be challenging due to their location and complex structure. Histoacryl injection is one of the entity for arresting gastric variceal bleed. In this study we retrospectively analyzed, the effectiveness of single session of Histoacryl injection in achievement of hemostasis in patients presenting with upper gastrointestinal bleeding secondary to gastric fundal varices.

Objective: The aim of our study is to assess the efficacy and long term outcome of single session of cyanoacrylate injection in patients who had gastric variceal bleeding.

Methods: It is a retrospective cohort study. The medical records of patients who presented with active gastric variceal bleeding between 01/01/2011 and 31/12/2015 in a tertiary care setting were evaluated retrospectively and the eventual outcome(s) (initial hemostasis, rebleeding, and mortality rate) was assessed at least 1 year after the index bleed. Non probability consecutive sampling was used.

Results: A total 70 patients were enrolled in our study of whom mean ages were 41 years, 64% were male. The most common cause of gastric variceal bleed was liver cirrhosis constituting about 63% of the total numbers of patients. It has been found that single session of cyanoacrylate injection is successful in achieving hemostasis (91%). One patient (1.42%) died while admitted. Rebleeding was seen in five patients (7%) when followed for one year. these patients were then successfully treated with repeated injection of cyanoacrylate.

Conclusion: it has been concluded from our study that a single session of cyanoacrylate injection is successful in achieving and maintaining hemostasis in majority of the patients admitted with gastric variceal bleed.

Key Words: Histoacryl, Gastric varices, upper gastrointestinal bleeding, endoscopy.

INTRODUCTION

Throughout the world one of the main causes of admission to hospital is acute upper gastrointestinal bleed, its incidence is reported as 50 – 150 episodes per 100,000 individuals per year. Mortality rate associated with acute upper gastrointestinal bleeding is 10–14%.¹ It should be remembered that variceal bleed is one of the life threatening complications of portal hypertension causing about one third deaths in cirrhotic patients.² Gastric variceal bleed is usually less common than esophageal variceal bleed and is associated with a greater management challenge, with higher reported transfusion requirements, rates of rebleeding and mortality.² An international study reported that there are numerous causes of upper gastrointestinal bleed but the most common causes are

esophageal varices 57.7%, peptic ulcer disease 18.2%, portal hypertensive gastropathy 9.5%, gastric varices 5.1%, Mallory - Weiss tear 2.9%, reflux esophagitis 2.9% and erosive gastropathy 1.5%.³ Recent studies conducted in Pakistan reported gastric fundal varices as cause of upper gastrointestinal bleeding in 3.1% of general population⁴ and gastric varices accounted for upper gastrointestinal bleeding in 12.3% in cirrhotic patients. There are various options of treating gastric fundal varices which include both surgical and radiological interventions carry significant risk of mortality and morbidity.⁵ In 1986 Sohendra et al first reported that bleeding from gastric fundal varices could be controlled by injecting cyanoacrylate in the respective varices, however, after that many authors have used various agents including N-butyl-2

cyanoacrylate, 2-octyl cyanoacrylate, ethanolamine oleate injection, thrombin, gastric variceal banding, and sodium tetradecyl sulfate to achieve hemostasis in bleeding from gastric fundal varices.⁶ The main objective of our study is to share our experience regarding efficacy of cyanoacrylate injection into gastric fundal varices in achieving hemostasis in patient presenting in gastroenterology department LRH, Peshawar. The knowledge of efficacy of N-butyl-cyanoacrylate in local population will enable us to administer the best possible treatment modality for this fatal emergency.

MATERIALS AND METHODS

A total of 70 patients were enrolled in our study using WHO software for sample size distribution (95% confidence interval and 5% margin of error). The patients for study were included from Gastroenterology and Hepatology department unit MTI-LRH being admitted with upper GI bleed. Moreover informed consent was taken from every patient included in this study. Patients, in whom the cause of upper GI bleed is other than gastric varices that is peptic ulcer disease, esophageal varices etc, were excluded from study. After cyanoacrylate injection successful homeostasis were defined using BAVENO V guidelines as an absence of upper GI bleed for 1st 120 hours (5 days) after injecting cyanoacrylate into gastric fundal varices. Any bleeding after 120 hours (5 days) of cyanoacrylate injection is defined as rebleeding. Similarly unsuccessful hemostasis was also defined using BAVENO V guidelines as death or the need to change treatment due to hematemesis or aspiration (if NG is in situ) of equal to or more than 100 ml fresh blood 2 hours after the therapy either drug or endoscopic or development of shock (hypovolemic) or a drop in hemoglobin by 3 g within any 24 hours period in the absence of transfusions. Senior consultant gastroenterologists with experience of 200 esophagogastroduodenoscopies performed the procedure on all patients using standard forward viewing video scope (Pentax EG 2910). After mixing lipiodol with N-butyl cyanoacrylate in a ratio of 1:1 it was then injected into gastric fundal varices. The volume used was 0.5 to 4 ml.

RESULTS

Patients included in study were having age ranging from 15 to 70 years with mean age of 41 years and male to female patients 45 and 25 respectively. Seventy patients included in the study, sixty four (91%) patients had successful achievement of homeostasis with single session of Histoacryl injection. Five patients (7%) had rebleeding who were managed by repeated sessions while one (1.42%) patient died during hospital stay.

DISCUSSION

The source of upper GI bleed in Patients with portal hypertension is mostly either esophageal or gastric varices, the later accounts for about 20% but only few bleed.¹⁻³ Unfortunately gastric variceal bleed is catastrophic and mostly causing heavy upper GI bleed⁷ and therefore requires great amounts of blood transfusion. It has been found that single session of cyanoacrylate injections is effective in treating gastric varices related upper GI bleed. The percentage of successfully treated patients was significant when compared to the national and international studies. In Karachi, a recent study was carried out to assess the efficacy of single session of cyanoacrylate in gastric varices in 97 patients it was found that eighty three patients were managed successfully in controlling bleeding. Rebleeding was observed in twenty four patients while seven patients died during the hospital stay.⁸ In a study conducted in China, Wu Q et al found that, out of eleven enrolled patients, a single session of Histoacryl was sufficient in eliminating gastric varices in ten patients. No major complication was seen during or after the procedure.⁹ Seewald S, a retrospective study, in Germany reported that 100% (131) of the patients achieved initial homeostasis and gastric variceal obliteration with single session of Histoacryl and not a single patient developed any complication during the procedure.¹⁰ Although N-butyl-cyanoacrylate is not used in USA as it is not yet FDA approved, it is administered in Canada, North America, Germany and Japan and they have reported excellent short and long term efficacy rates.² Similarly Updated guidelines have also recognized that N-butyl-cyanoacrylate is considered to be the most effective and 1st line treatment to control gastric variceal bleed.⁸ Upon the basis of our study and the results, when compared to the other national and international studies, show excellent response of N-butyl cyanoacrylate in gastric variceal bleeding control.

CONCLUSIONS

From our study it is concluded that single session of cyanoacrylate is considered to be the most effective treatment in controlling gastric fundal variceal bleed.

Address for Correspondence:

*Dr. Hashmatullah Khan, Assistant Professor,
Department of Gastroenterology
MTI, Lady Reading Hospital, Peshawar.
Email: drhashmat1980@gmail.com*

REFERENCES

1. Fattahi E, Somi MH, Moosapour R, Fouladi RF. Independent Predictors of In hospital re-bleeding. Need of operation and mortality in Acute upper gastrointestinal bleeding. Pakistan journal of biological sciences, 2011; 14: 849-53.

2. Ali J, Pawlowska M, Coss A, Svarta S. Endoscopic management of gastric variceal bleeding with Cyanoacrylate glue injection: safety and efficacy in a Canadian population. *Can J Gastroenterol.* 2010; 24: 593-96.
3. Svoboda P, Konecny M, Martinek A, Hrabovsky V, Rochazka V, Ehrmann J. Acute Upper Gastrointestinal bleeding in liver cirrhosis patients. *Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub.* 2012; 156: 266-70.
4. Naseer M, Khan AU, Gillani FM, Saeed F, Ahmed S. Determination of frequency and treatment outcome in patients of fundal varices presenting with upper gastrointestinal bleeding. *Pak Armed Forces Med J.* 2012; 64: 483-86.
5. Hashizume M, Akahoshi T, Tomikawa M. Management of gastric varices. *Journal of Gastroenterology and Hepatology,* 2011; 26: 102-08.
6. Wang YM, Cheng LF, Li N, Wu K, Zhai S, Wang YW. Study of glue extrusion after endoscopic N-Butyl-2-Cyanoacrylate injection on gastric variceal bleeding. *World J Gastroenterol.* 2009; 15: 4945-55.
7. Phadet Noophun, Pradermchai Kongkam, Sutep Gonlachanvit, and Rungsun Rerknimitr. Bleeding gastric varices: Results of endoscopic injection with cyanoacrylate at King Chulalongkorn Memorial Hospital. *World J Gastroenterol.* 2005 Dec. 21; 11 (47): 7531-7535.
8. Ali Khawaja1, Ambreen Aziz Sonawalla1, Sana Farhad Somani1, Shahab Abid2. Management of Bleeding Gastric Varices: Efficacy of Single Session of Histoacryl Injection. *Eur J Gastroenterol Hepatol.* 2014 Jun; 26 (6): 661-7.
9. Wu Q1,2, Jiang H2, Linghu E2, Zhang L3,4,5,6, Wang W2, Zhang J2, He Z2, Wang J2, Yang Y2, Sun G2, Sun G2....BRTO assisted endoscopic Histoacryl injection in treating gastric varices with gastroduodenal shunt....*Minim Invasive Ther Allied Technol.* 2016 Dec; 25 (6): 337-344.
10. Seewald S1, Ang TL, Imazu H, Naga M, Omar S, Groth S, Seitz U, Zhong Y, Thonke F, Soehendra N...A standardized injection technique and regimen ensures success and safety of N-butyl-2-cyanoacrylate injection for the treatment of gastric fundal varices...*Gastrointest Endosc.* 2008 Sep; 68 (3): 447-54.