International Journal of Hepatology & Gastroenterology

Research Article

Lessons from COVID-19, Follow Up of Gastro Esophageal Varices Every Two Months May Have the Same Efficacy and Safety -

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Submitted: 02 June 2021 **Approved:** 10 June 2021 **Published:** 13 June 2021

Cite this article: Hassnine AA, Fouad YM, Hassanin TM, Hassan HA, Abbas AM, Elsayed AM. Lessons from COVID-19, Follow Up of Gastro Esophageal Varices Every Two Months May Have the Same Efficacy and Safety. Int J Hepatol Gastroenterol. 2021 June 13;7(1): 013-016. doi: 10.37871/ijhg.id52

ISSN: 2639-3778

ISSN: 2639-3778

Abstract

Portal hypertension is considered as a major complication of liver cirrhosis. Endoscopy plays an important role in the management of gastrointestinal complications of portal hypertension. Endoscopists are at increased risk for Corona Virus Disease 2019 (COVID-19) because upper Gastrointestinal (GI) endoscopy is a high-risk aerosol-generating procedure and may be a potential route for COVID-19 Objectives to compare the outcome between cirrhotic patients who underwent classic regular endoscopic variceal ligation after primary bleeding episode every 2-4 weeks and those presented during the era of COVID-19 and their follow up was postponed two months later.

Methods: This retrospective study included cross matched 238 cirrhotic patients with portal hypertension presented with upper GI bleeding, 112 cirrhotic patients presented during the era of COVID-19 (group A) underwent endoscopic variceal ligation; another session after 2 weeks and their subsequent follow up was postponed two months later, 126 cirrhotic patients as control (group B) underwent regular endoscopic variceal band ligation after primary bleeding episode every 2-4 weeks.

Results: Eradication of varices was achieved in 32% of cases in group A and 46% in group was no statistical significant ($p > 0.05$), also there was no statistical significant difference between both groups regarding occurrence of re bleeding, post endoscopic symptoms and mortality rate ($p > 0.05$).

Conclusion: band ligation and injection of esophageal and gastric varices every two months were as effective and safe as doing it every two to four weeks after primary bleeding episode for further studies and validation.

Keywords: COVID-19; Portal hypertension; Variceal ligation; Gastrointestinal; Bleeding; Endoscopy

INTRODUCTION

Portal hypertension is considered as a major complication of liver cirrhosis, and its sequlae including ascites, variceal hemorrhage, encephalopathy and hepato renal syndrome, lead to substantial morbidity and mortality [1].

Portal hypertension can be defined as elevation in the portal system. Portal vein pressure normally ranges from 7 to 12 mm Hg at rest and in fasting conditions [2]. Portal hypertension occurs due to an increase in resistance or blood flow in the portal venous system so in liver cirrhosis, the formation of tissue scar and regenerative nodules can lead to an increase in intrahepatic vascular resistance and consequently portal pressure [3]. Portal hypertension leads to an increase in the portosystemic collateral flow to decompress the portal venous system. The most clinically important site of these collaterals is within the mucosa of the proximal stomach and distal esophagus, resulting in the development of gastro esophageal varices [4].

Screening for gastro esophageal varices with upper gastrointestinal endoscopy has been recommended for all patients with cirrhosis. The importance of screening for the presence of varices lies in the risk of their rupture and subsequently life-threatening bleeding. Esophageal varices can be classified as small (<5 mm) or large (5 mm). The risk of bleeding in small varices is approximately 5% per year and up to 15% in large varices [5].

A new Severe Acute Respiratory Syndrome Corona Virus (SARS-COV2) outbreak leading to Corona Virus Disease 2019 (COVID-19) has begun in Wuhan in December 2019, then rapidly spread throughout China and became worldwide [6]. The World Health Organization declared COVID-19 as pandemic infectious disease on 11 March 2020, and the number of confirmed COVID-19 cases had increased to more than 372000 globally by 24 March 2020 [7].

Gastrointestinal endoscopies, especially those done through the nasal and oral cavities, may lead to cough and subsequent emission of droplets and increase the risk of exposure of the medical team, including endoscopists, nurses, and assistants to aerosol contamination [8]. The risk of viral transmission may increase during a prolonged stay in a closed environment as in endoscopic room [9].

Endoscopy units are faced with great challenges during this pandemic as 3.8% of confirmed cases from China were Healthcare Personnel (HCP) with reported deaths [10]. Endoscopy is likely a high-risk procedure as pulmonary and gastric secretions, as well as fecal material, may contain large viral loads. Infection control measures must be applied to ensure patient safety, avoid nosocomial outbreaks, protect HCP, and ensure rational use of limited Personal Protective Equipment (PPE) [11]. In this study, we aim to compare the outcome between cirrhotic patients who underwent classic regular endoscopic variceal ligation after primary bleeding episode every 2-4 weeks and those presented during the era of COVID-19 and their follow up was postponed two months later.

SUBJECTS AND METHODS

This retrospective study included 238 cirrhotic patients with portal hypertension presented with upper GIT bleeding to GIT endoscopy unit minya university hospital. 112 cirrhotic patients (group A) presented to the hospital in 2020 during the 1st era of COVID-19 from April to July 2020 underwent Endoscopic Variceal Ligation (EVBL) and gastric varices injection if needed another session after 2 weeks and their subsequent follow up was postponed two months later. Another cross matched 126 cirrhotic patients (group B) presented to the hospital during the same period in 2019 underwent regular endoscopic variceal band ligation and gastric varices injection if needed after primary bleeding episode every 2-4 weeks. Patients with hepatic encephalopathy, patients with portal vein thrombosis and patients with contraindications to use beta blockers following EVBL, patients with a platelet count less than 50000/mm3 or INR more than 1.8 were excluded from the study. All patients were assessed clinically by detailed history and meticulous examination. Complete blood count, ALT, AST, seum albumin, serum bilirubin, serum creatinine, INR and abdominal ultrasonography were done to all patients. Child Turcotte Pugh classification and Modle For End Stage Liver Disease (MELD) score were used to evaluate these hepatic patients [12,13]. The endoscopic maneuver was performed in a single endoscopy unit using pentax videoscope EG 2990 I and pentax videoscope EG2990 K using light source EPK-I 5000 by experienced gastroenterologists. patients were sedated with intravenous midazolam .A gastroscopy was done and if medium to large size esophageal varices were present then bands were applied by using multi-load ligature device. Patient

were observed for an hour after the procedure and discharged with clear instructions. Grading of esophageal varices was performed as Small varices if they were < 5 mm Large, if they were > 5 mm [14,15]. Bleeding gastric varices are injected with cyanoacrylate and lipidol [16].

The collected data were inserted, tabulated, and statistically anatomized using Statistical Package for Social Sciences program (SPSS) software version 24.Qualitative data were expressed as proportions, while quantitative data were expressed as mean + Standard Deviation (SD) and Median Plus Inter Quartile Range (IQR) . Statistical significance was defined as $p < 0.05$.

RESULTS

The present retrospective study included cross matched 238 cirrhotic patients were suffering of portal hypertension and presented with upper GIT bleeding; 112 ones presented during the 1st era of COVID-19 from april to july 2020 and their subsequent follow up endoscopic sessions were two months later (group A) and another 126 cirrhotic patients presented during 2019 and had subsequent regular endoscopic follow up (group B). Table 1 shows the base line characters of the studied groups at the time of presentation by bleeding to the hospital, males are more predominant than females, most patients in both groups presented by hematemesis and melena, the majority of patients are child class B ; 59% of group A and 62% of group B, the median of MELD score is 12 in group A and 11 in group B, the median number of esophageal variceal cords is 4 in group A and group B. Majority of patients had large varices ; 69% in group A and 66% in group B. Table 2 shows that eradication of varices was achieved in 36 cases (32%) in group A and in 58 patients (46%) in group B with no significant difference ($p > 0.05$). Rebleeding occurred in 18 patients (16%) in group A and in 32 ones (25%) in group B with no significant difference ($p > 0.05$). dysphagia, odynophagia and chest pain are different post endoscopic symptoms occurring in 22 patients (20%) and in group A and in 28 patients (22%) in group B with no significant difference ($p > 0.05$). 8 patients died in group A (7%) while 14 patients died in group B (11%) no significant difference between them ($p > 0.05$).

Table 1: The base line characters of the studied groups.

	Group A (112)	Group B (126)
Age (median in years)	46 (17 - 71)	48 (21 - 66)
Female/ Male	44/68	52/74
Hematemesis **Melena** **Both**	16(14%) 18(16%) 78(70%)	28(22%) 22(18%) 76(60%)
Child class (number &%) **A** **B** **C**	 21 (19%) 66 (59%) 25 (22%)	 26 (21%) 78 (62%) 22 (17%)
Hemodynamic instability number &%	51 (49%)	62 (55%)
Median MELD score	12 (7-34)	11 (8-33)
INR	1.5 (1.1-2.4)	1.6 (1.2-2.6)
Bilirubin (mg/dl)	1.3 (0.9-14)	1.5 (1-21)
Albumin (g/dl)	3.2 (2.4-4.1)	3 (2.2-4.5)
Creatinie (mg/dl)	1 (0.9-2.8)	0.9 (0.8-6.2)
ALT	48 (26-212)	44 (18-466)
AST	52 (22-288)	49 (16-512)
Median number of varices	4 (1-6)	4 (1-6)
size of varices **Small** **Large**	 34 (31%) 78 (69%)	 42 (34%) 84 (66%)

Table 2: 0utcome of endoscopic intervention.

Eradication rate	36/112 (32%)	58/126 (46%)	$p = 0.145$
Rebleeding rate	18/112 (16%)	32/126 (25%)	$p = 0.07$
Dysphagia, odynophagia chest pain	22/112 (20%)	28/126 (22%)	$p = 0.62$
death	8/112 (7%)	14/126 (11%)	$p = 0.194$

DISCUSSION

The present study designed to assess increasing the duration of sequential follow up endoscopic sessions of esophagogastric varices every two months during the 1st era of COVID-19 in comparison to the classic way of endoscopic follow up every two to four weeks before the era of the covid in 2019. The pandemic COVID-19 has made a lot of changes in medical practice. Now patients and physicians were struggling to reduce classic visits for public health reasons 17. In our study we have found that eradication of esophagogastric varices in those followed up during era of COVID-19 in 2020 wasn't significantly differ from those followed up endoscopically every two to four weeks during the same period in 2019. Surprisingly, we also found that there is no significant difference between both groups of patients regarding the occurrence of rebleeding. There was no significant statistical difference regarding the occurrence of post endoscopic symptoms like dysphagia, odynophagia or chest pain. The mortality rate in patients underwent endoscopic follow up every two months wasn't significantly differ than those underwent regular classic follow up every two to four weeks. So, during our endoscopic practice in the era of COVID-19 we can conclude that band ligation of esophageal varices and injection of gastric varices every two months seem to be as effective and safe as doing it every two to four weeks after primary bleeding episode for more studies.

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