Bleeding Gastric Varices: Frequency and Outcome.

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Abstract

Background and aims: Gastric variceal (GV) bleeding is less frequent than esophageal variceal (EV) bleeding but it is still a serious cause of morbidity and mortality.The aim of study was to assess the frequency and identify the patients' outcome after management.

Patients and methods: The study was conducted on 500 cirrhotic patients with upper gastrointestinal bleeding the period from June 2016 to June 2017.All patients were subjected to complete history taking, clinical examination, laboratory investigations, abdominal US and esophago-gastro-duodenoscopy (EGD) for detection of the source of bleeding. If bleeding GVs were detected, Cyanoacrylate was injected into them to achieve primary haemostasis.

Results: Endoscopic examination revealed bleeding GV in 50 patients (10 %), bleeding EV in 400 patients (80%), while bleeding from other sources was in 50 patients (10%).In the GV group, thirty-five patients (70%) had isolated GV (type I) and 15 patients (30%) had continuous Gastroesophogeal varices (type 2).Most patients (80%) with GV had red colour signs (Rc+).PHG was seen in 48 patients (96%).

After Cyanoacrylate injection of GV, 40% developed eradication, 38% died & 22% developed re-bleeding.Upon studying the predictors of mortality, we found that patients who died had significantly lower albumin & higher ALT & AST levels. Early re-bleeding was more common among Child A patients with moderately sized GV (F2), but the difference was not statisticallysignificant. By multivariate analysis we found no independent predictors of mortality or re-bleeding.

Conclusions: Bleeding GVs represents 10% of upper GIT bleeding in cirrhotic patients. No independent factors could predict the mortality or re-bleeding among cirrhotic patients with bleeding GVs by multivariate analysis.

Key words: Gastric varices, bleeding, predictors of mortality, predictors of re-bleeding

Abbreviations: GVs: Gastric varices, EVs: Esophageal varices, (GOVs): Gastro-oesophageal varices.

Introduction

Acute upper gastrointestinal (AUGI) bleeding is a common cause of emergency hospitalization worldwide[1].Acute variceal hemorrhage (AVH) is an important complication of portal hypertension (PH) that is associated with significant morbidity and mortality[2]. Gastric variceal bleeding is a serious cause of morbidity and mortality among patients with PH. Most of the studies underestimate its true prevalence[3]. It may be difficult to distinguish fundal varices from gastric folds due to their deep submucosal location as well as the normal color and appearance of the overlying mucosa[4].The prevalence of GV in patients with PH variesfrom 18 to 70%; although the incidence of bleeding from GV is relatively low ranging from 10 to 36%. Management of GV presents a challenging problem since there is no consensus regarding the optimum treatment of GV, treatment tends to be empirical[5].Sarin et al [6]., documented that GVs were found in 20% of patients with PH and secondary GV developed in 9% of patients during follow-up evaluation.Although GV bleeding occurs less frequently than EV bleeding; it tends to be more severe

and requires more blood transfusions with a higher mortality than EV bleeding[6].

Red color spots, larger nodular gastric varices, and fundal location have been identified as risk factors for GV bleeding[7]. In addition,Kim et al[8].found that advanced Child-Pugh class, varix>5 mm in size, and the presence of a red spot were associated with an increased risk for a first bleed.

As a result of the high morbidity and mortality of GV, it is valuable to estimate its exact frequency and identify risk factors for bleeding among upper Egyptian patients. In addition, evaluation of GV outcome after histoacryl injection.

Aim of the work

This study was done to:

(1) Assess frequency of bleeding GV.

(2) Identify the risk factors for rebleeding & the predictors of mortality in those patients.

(3) Identify patients outcome after histoacryl injection .

Patients & methods

This prospective clinical study was conducted on all cirrhotic patients with (AUGI) bleeding seeking medical advice at the Tropical Medicine and Gastroenterology Department, Sohag University Hospital in the period from June 2016 to June 2017.

Inclusion criteria: Patients with liver cirrhosis and portal hypertension who underwent EGD after upper GI bleeding at the Tropical Medicine and Gastroenterology Department, Sohag University Hospital and diagnosed to have bleeding gastricvarices.

Exclusion criteria: Patients diagnosed to have other causes of upper GIT bleeding (such as: EVs, peptic ulcer disease, reflux esophagitis, erosions, antral vascular ectasia).

All patients were subjected to the following:

1-**Complete clinical evaluation:** Including vital signs, stigmata of chronic liver disease & abdominal examination.

2- Laboratory Investigations : Complete blood picture,liver profile serological testing for HBV and HCV, serum creatinine and ascitic fluid study.

3- Abdominal Ultrasonography : With details about size of the liver, surface,hepatic focal lesion, portal vein diameter, portal vein thrombosis, spleen size, porto-systemic collaterals and ascites.

4- Upper GIT endoscopy : Upper endoscopic examination for detailed evaluation of the esophagus, stomach and duodenum. GVs were classified on the basis of their location in the stomach and their relationship with oesophageal varices, according to Sarin et al. [6]

Gastro-oesophageal varices type 1 (GOV1): varices continuous with oesophageal varices and extending along the lesser curve for about 2-5 cm below the gastro-oesophageal junction.

Gastroesophageal varices type 2 (GOV2): varices extending from the oesophagus below the gastro-oesophageal junction toward the fundus.

Isolated GVs type1 (IGV1): varices located in the fundus that often are tortuous and complex in shape.

Isolated GV type 2 (IGV2): ectopic varices in the antrum, corpus, and around the pylorus.

All patients with bleeding GVs were injected with cyanoacrylate once or repeated sessions were needed to achieve eradication.

Patients were followed up for one year for development of re-bleeding or death.

Ethical consideration:

The study design was approved by the ethical and scientific research committee of Faculty of Medicine,

Sohag University. Informed consents were obtained from all patients.

Results

During the study period 500 cirrhotic patients presented by upper GI bleeding were examined by upper endoscopy , bleeding from gastric varices was seen in 50 patients (10 %), bleeding from EV was detected in 400 patients (80 %) , while bleeding from other sources (non variceal bleeding) was seen in 50 patients (10%) .

Only 35 patients (70%) had isolated GV type I & 15 patients (30%) had continuous Gastro-oesophogeal varices type 2 with red colour signs (Rc+) in 80% of the cases as shown in **Table(1).** Regarding Child classification & MELD scores ,we found no significant difference between them and GVs size (**Table 2).**

Primary haemostasis was achieved in all patients with histoacryl injection. During the period of follow up, eradication of GVs was achieved in 40%, early re-bleeding occurred in 11 patients (22%) and secondary haemostasis was achieved in all of them by re-injection with Cyanoacrylate. Death occurred in 19 patients (38%).

Patients who died had significantly lower albumin & higher ALT & AST levels **Table (3)**.By multivariate analysis we found no independent predictors of mortality or rebleeding in cirrhotic patients with bleeding GVs as shown in **(Table 4 ,7).**

Table (1): Source of bleeding in 500 cirrhotic patients with upper gastrointestinal bleeding .

Gastric varices	**50 (10%)**
Gastricvarices F1,F2,F3	**3 (6.00%), 37 (74.00%), 10 (20.00%)**
Red colour signs	**40 (80 %)**
Histoacryl Injection	**50 (100%)**
Previous Histoacryl Injection	**19 (38.00%)**
Types of fundal varices Isolated(type I)/ Continuous(type 2)	**35 (70 %)/ 15 (30 %)**
Esophageal varices	**400 (80%)**
Gastric ulcers	**30 (6%)**
Portal hypertensive gastropathy	**20 (4%)**

Table (2) Relation between GVs size, Child and MELD scores in the 50 patients population

Variable	F1(N=3)	F2(N=37)	F3(N=10)	P value
Child score				
A	**1 (33.33%)**	**24 (64.86%)**	**7 (70.00%)**	**0.78**
B	**1 (33.33%)**	**6 (16.22%)**	**2 (20.00%)**	
C	**1 (33.33%)**	**7 (18.92%)**	**1 (10.00%)**	
MELD score Mean ± SD	**16.4±9.81**	**11.36±6.44**	**11.21±6.30**	**0.63**

Table (3): liver functions comparison between survivors & non-survivors

Variable	Survivors (31)	Death (19)	P value
Bilirubin (mg/dl) Mean ± SD	1.50±1.27	2.52±2.10	0.049
Albumin (gm/dl) Mean ± SD	3.41±0.59	2.94±0.73	0.02
Prothrombine time (seconds) Mean ± SD	16.14±2.27	16.96±2.77	0.26
Prothrombine concentration Mean ± SD	66.40±13.10	63.63±13.89	0.48
International normalization rate Mean ± SD	1.25±0.31	1.41±0.31	0.08
Alanine transaminase (u/l) Mean ± SD	77.06±172.82	85.42±80.89	0.01
Aspartate transaminase (u/l) Mean ± S	108.71±285.84	115.79±140.72	0.04
Child score			
A	23 (74.19%)	9 (47.37%)	0.16
B	4 (12.90%)	5 (26.32%)	
C	4 (12.90%)	5 (26.32%)	
MELD score Mean ± SD	11.71±7.16	11.5±5.67	0.83

Table (4): Multivariate analysis for predictors of mortality

Variable	Odds ratio (95% confidence interval)	P value
Bilirubin	1.11 (0.64-1.88)	0.72
Albumin	0.67 (0.16-2.74)	0.58
INR	2.00 (0.19-20.84)	0.56
ALT	1.01 (0.97-1.05)	0.54
AST	0.99 (0.97-1.02)	0.51
HCV vs. No HCV	3.18 (0.40-36.24)	0.24
Creatinine	1.45 (0.53-4.00)	0.46
HFL vs. HFL	3.18 (0.19-53.53)	0.42

Table (5) Univariate analysis for predictors of re-bleeding (Demographic and clinical data).

Variable	No re-bleeding (38)	Re-bleeding (12)	P value
Age/years Mean ± SD	56.79±12.47	56.17±4.60	0.87
Gender			
Female	12 (31.58%)	4 (33.33%)	0.91
Male	26 (68.42%)	8 (66.67%)	
Smoking	18 (50.00%)	5 (41.67%)	0.61
B. Blockers	24 (63.16%)	7 (58.33%)	0.76
NSAID	3 (7.89%)	2 (16.67%)	0.58
DM	3 (7.89%)	3 (25.00%)	0.14
Hypertension	1 (2.63%)	0	1.00
Number of attacks			
First	12 (31.58%)	5 (41.67%)	
Second	11 (28.95%)	4 (33.33%)	0.92
Third	8 (21.05%)	2 (16.67%)	
Fourth	4 (10.53%)	1 (8.33%)	
Fifth	2 (5.26%)	0	
Sixth	1 (2.63%)	0	
H/O of portal hypertension	27 (71.05%)	5 (41.67%)	0.09
Bilharziasis	6 (15.79%)	0	0.31
Hepatitis	20 (52.63%)	8 (66.67%)	0.39
Pulse rate Mean ± SD	81.63±10.19	86.17±7.50	0.16
Systolic blood pressure Mean ± SD	107.11±11.83	111.67±16.42	0.30
Diastolic blood pressure Mean ± SD	69.34±8.56	72.5±9.65	0.29
Pallor	13 (34.21%)	7 (58.33%)	0.18
Jaundice	6 (15.79%)	1 (8.33%)	1.00
Mental status			
Conscious	36 (94.74%)	11 (91.67%)	1.00
Disturbed	2 (5.26%)	1 (8.33%)	
Flapping	11 (28.95%)	4 (33.33%)	1.00
Lower limb edema	14 (36.84%)	2 (16.67%)	0.29
Splenomegaly	8 (21.05%)	2 (16.67%)	1.00
Ascites	9 (23.68%)	1 (8.33%)	0.42

Table (6) Univariate analysis for predictors of re-bleeding (laboratory)

PLTs Mean ± SD	115.87±38.14	138.5±42.32	0.09
Bilirubin Mean ± SD	2.15±1.83	1.07±0.60	0.051
Albumin Mean ± SD	3.16±0.71	3.45±0.50	0.20
ALT Mean ± SD	67.79±61.08	119.67±278.31	0.07
AST Mean ± SD	87.21±103.57	188±459.11	0.31
HBV	1 (2.63%)	1 (8.33%)	0.43
HCV	32 (84.21%)	8 (66.67%)	0.23
CreatinineMean ± SD	1.34±1.55	0.93±0.38	0.58
Child score A B C	 23 (60.53%) 6 (15.79%) 9 (23.68%)	 9 (75.00%) 3 (25.00%) 0	 0.17
Meld score Mean ± SD	 12.74±6.94	 8.13±3.52	 0.03

Table (7): Multivariate analysis of re-bleeding predictors.

Variable	Odds ratio (95% confidence interval)	P value
PLTs	1.00 (0.98-1.03)	0.70
Bilirubin	0.30 (0.07-1.33)	0.11
ALT	1.00 (0.99-1.01)	0.24
MELD score	0.95 (0.77-1.19)	0.68

Discussion

In the present study, the frequency of bleeding GVs was 10 %, frequency of oesophageal bleeding was 80% while non-variceal bleeding (gastric ulcers & PHG) represented only 10% . This matches with Wani et al[9]and Koziel et el[10].

On the other hand, higher GV frequency was reported by Mumtaz et al. [11]

In the GV group, we found higher frequency of isolated gastric varices type 1 compared to gastro-oesophogeal varices type 2 (70% ,30%) respectively. Similar results were reported by Sarin et al.[6] and Mumtaz el al. [11]. On the other hand, Butt et al.,[12] showed that GVs were present in minority of patients undergoing oesophago-gastroduodenoscopy, and among them GOV type 1 was the most common .

Most patients with GV (80%) in our study had (RC) sign. The same results were reported by others where they found a significant relation between bleeding from GVs and the presence of red color sign[13].

In the present study, most patients (64%) with bleeding GVs were in Child A class. This contrasts with Kim et al.[8] who reported that most patients with GV bleeding were in Child class B and C. However, we found non statistically significant relation between the size of bleeding GVs size and both Child and MELD scores. While other reports failed to find a significant relation between bleeding from GVs and the severity of liver dysfunction[11], others documented the presence of (ulcers and red color sings) and severe liver dysfunction (Child class B and C) were independent risk factors for bleeding GV regardless their types.

In the present study Cyanoacrylate injection of GVs achieved successful primary hemostasis in all patients with bleeding. Early re-bleeding occurred in only 11 cases (22%) and secondary hemostasis was achieved in all of them using Cyanoacrylate with no serious complications.

Mumtaz et al.[11] reported that primary hemostasis was achieved with Cyanoacrylate injection in 100% of patients and early re-bleeding rate was 14%.

Eradication of GV in our series was achieved in 40% of the cases , while 38% died and 22% developed re-bleeding within one year .

Upon studying the predictors of mortality, we found that lower

albumin & higher ALT & AST are the only predictors in univariate analysis. Neither ultrasonograghic nor endoscopic findings could predict mortality. Similarly Child & MELD scores could not predict the mortality in our study. On the other hand, another study reported that Child-Pugh classification was a significant prognostic factor of survival[14].

In the present study early re-bleeding was higher among child A patients with moderately sized GVs (F2), but the difference was not statistically significant. By multivariate analysis we found no independent predictors of re-bleeding GVs

Other studies reported that predictors for re-bleeding are usually related to the severity of the bleeding and characteristics of the ulcer, whereas advanced age, physical status of the patient, and comorbidities are important predictors for mortality in addition to those for rebleeding[14].

Patients with acute variceal haemorrhage and MELD score>or = 18, requiring > or = 4 units of PRBCs within the first 24 h or with active bleeding at endoscopy are at increased risk of dying within 6 weeks. MELD score > or = 18 is also a strong predictor of variceal re-bleeding within the first 5 days[15].

Conclusion:

No independent factors could predict the mortality or re-bleeding among cirrhotic patients with bleeding GVs by multivariate analysis.

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