ORIGINAL ARTICLE

Validity of Upper Gastrointestinal Bleeding Etiology Score for Determining Variceal Bleeding by Doing Esophagoduodenoscopy as Gold Standard

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ABSTRACT

Aim: To determine the validity of upper gastrointestinal bleeding etiology score for determining variceal bleeding by doing esophagoduodenoscopy as gold standard.
Study design: Cross sectional validation survey
Study setting: Department of Medicine, Aviceena Teaching Hospital, Lahore and Department of Medicine Services Hospital Lahore.
Duration of study: Six months after approval of synopsis (From Jan 2013 to June 2013)
Results: The results of the study reveal majority of the patients i.e. 30.83%(n=37) between 51-60 years of age, mean and standard deviation was recorded as 35.64±7.75 years, 55.83%(n=67) female and 44.17%(n=53) were male patients, frequency of variceal bleeding (on esophagoduodenoscopy as gold standard) was recorded in 13.33%(n=16) while 86.67%(n=104) had no variceal bleeding, the validity of upper gastrointestinal bleeding etiology score for determining variceal bleeding by doing esophagoduodenoscopy as gold standard shows sensitivity, specificity, positive predictive value, negative predictive value and accuracy rate was calculated as 78.57%, 95.28%,68.75%, 97.12% and 93.33% respectively.
Conclusion: The result of the study determined that etiology score for determining variceal bleeding by doing esophagoduodenoscopy as gold standard is valid and having considerable specificity and sensitivity in patients presenting with upper gastrointestinal bleeding
Keywords: Upper gastrointestinal bleeding, etiology score, variceal bleeding

INTRODUCTION

Upper gastrointestinal bleeding is a common gastroenterology emergency and carries a mortality rate of 5-14%.[1] Upper gastrointestinal bleeding is a defined as bleeding derived from a source proximal to the ligament of treitz[2]. The incidence of upper gastrointestinal bleeding is approximately 100 cases per 100,000 population per year.[2] The cardinal features are haemetemesis (the vomiting of blood) and melena (the passage of black tarry stool[3].

The most common causes of upper gastrointestinal bleeding are duodenal ulcer (35%) and gastric ulcer (20%).[4] Bleeding from oesophageal varices is responsible for only 5-11% of upper gastrointestinal bleeding[4]. Oesophageal varices are the dilated submucosal veins that develop in the patients with underlying portal hypertension. The most common cause of portal hypertension is cirrhosis[5]. Gastroesophageal varices bleeding occur in 25 to 35% patients having cirrhosis[6]. Upper gastrointestinal (GI) endoscopy is the diagnostic modality of choice for upper gastrointestinal bleeding[7]. Endoscopy is the most accurate and practical method for diagnosing the source of upper gastrointestinal bleeding[8]. Subsequent appropriate endoscopic endoscopic therapy significantly reduces mortality, rebleeding, requirement for transfusion, hospital stay and health care cost.[8] Esophagoduodenoscopy (EGD) is seldom available in most hospital due to difficulty of setting of emergency services in non official time, an insufficiency of well trained endoscopists and medical team and lack of equipments. Thus, most patients are usually treated medically for a period of time before being referred for esophagoduodenoscopy at the centre with available facilities. To improve the clinical gain and to decide about empiric treatment of upper gastrointestinal bleeding, upper gastrointestinal bleeding etiology score has been developed for determining whether the bleeding is variceal or non variceal, the vericeal by taking into account the clinical parameters. A recent study has shown that upper gastrointestinal bleeding etiology score has a sensitivity of 85% and specificity of 81% in predicting the score of bleeding[1].

The result of this study may be useful for diagnosing the cause of upper gastrointestinal bleeding as variceal or non variceal at non specialist institutes lacking the facility for

esophagoduodenoscopy, providing the empiric treatment for upper gastrointestinal bleeding and avoiding the delay regarding specific treatment.

MATERIAL AND METHODS

This cross sectional validation survey was carried out in the Department of Medicine, Aviceena Teaching Hospital, Lahore and Department of Medicine Services Hospital Lahore by using non-probability consecutive sampling technique. All patients age more than 18 years of either gender with upper gsastrointestinal bleeding were included. Uncooperative/unfit patient for upper gastrointestinal endoscopypresenting after 72 hours of upper gastrointestinal bleeding on history were excluded.;

Patient fulfilling the selection criteria was explained the nature and propose of study and informed consent was sought. Guided by the structure proforma, information on the clinical factors was collected by taking a history and conducting an examination. Based on the variables noted in the proforma, upper gastrointestinal bleeding etiology score was computed for each case by me and classified as suffering from variceal bleeding if score was > 3.1 and non variceal if score ≤3.1. To calculate the score the presence of signs of chronic liver disease (palmer erythema, spider naevi, bruises, gynaecomastia, ascites, splenomegaly, ankle edema, testicular atrophy, confusion and drowsiness) if two or more than two signs scored 1 if present and 0 if absent, red vemitus scored 1 if present and 0 if absent. Upper gastrointestinal endoscopy was performed by a consultant in all patients within 72 hours after onset of upper gastrointestinal bleeding to look for variceal and non variceal bleeding as the cause of upper gastrointestinal bleeding.

SPSS (version 13) was used to enter and analyze the data. Mean and standard deviation was calculated for quantitative variables like age. Frequency and percentage were calculated for qualitative variables like gender.

RESULTS

A total of 120 cases fulfilling the inclusion/exclusion criteria were enrolled to determine the validity of upper gastrointestinal bleeding etiology score for determining variceal bleeding by doing esophagoduodenoscopy as gold standard. Age distribution of the patients is shown in Table 1 where the majority of the patients i.e. 37(30.83%) were recorded between 51-60 years of age, 27(22.5%) between 41-50 years, 23(19.17%) between 31-40 years, 22(18.33%) had >60 years of age while only 11(9.17%) were between 18-30 years, mean and standard deviation was recorded as 35.64±7.75 years (Table 1). Gender distribution of the patients shows that 67(55.83%) female and 53(44.17%) were male (Table 2).

Frequency of variceal bleeding (on esophagoduodenoscopy as gold standard) was recorded in 16(13.33%) while 104(86.67%) had no variceal bleeding (Table 3). Validity of upper gastrointestinal bleeding etiology score for determining variceal bleeding by doing esophagoduodenoscopy as gold standard, which reveals 11(9.17%) true positive, 5(4.17%) false positive, 3(2.5%) false negative and 101(84.17%) were true negative, sensitivity, specificity, positive predictive value, negative predictive value and accuracy rate was calculated as 78.57%, 95.28%,68.75%, 97.12% and 93.33% respectively (Table 4).

Table 1: Age Distribution (n=120)

Age(in years)	n	%
18-30	11	9.17
31-40	23	19.17
41-50	27	22.5
51-60	37	30.83
>60	22	18.33

Mean and sd 35.64±7.75

Table 2: Gender Distribution (n=120)

Gender	n	%
Male	53	44.17
Female	67	55.83

Table 3: Frequency of variceal bleeding (on esophagoduodenoscopy as gold standard) (n=120)

Variceal Bleeding	n	%
Yes	16	13.33
No	104	86.67

Table 4: Validity of Upper Gastrointestinal Bleeding Etiology Score for Determining Variceal Bleeding by Doing Esophagoduodenoscopy as Gold Standard

Variceal Bleeding	Non-Variceal bleeding	Total
Upper Gastrointestinal Bleeding Score >3.1		
True positive(a) 11(9.17%)	False positive (b) 5 (4.17%)	a+b 16(13.33%)
Upper Gastrointestinal Bleeding Score <3		
False negative(c) 3 (2.5%)	True negative (d) 101 (84.17%)	C^{+d}104 (86.67%)

Sensitivity= 78.57% *Specificity= 95.28%*
Positive predictive value= 68.75%
Negative predictive value= 97.12% *Accuracy rate=93.33%*

DISCUSSION

Upper Gastrointesinal Bleeding (UGIB) is a common gastrointestinal emergency and carries a mortality rate of 5%-14%.[9] The causes of UGIB have been

classified into variceal bleeding (esophageal and gastric varices) and non-variceal bleeding (peptic ulcer, erosive gastroduodenitis, reflux esophagitis, tumor, vascular ectasia, *etc*). Currently, emergency esophagogastroduodenoscopy (EGD) is the standard investigation of choice for active UGIB since it provides both diagnosis and treatment of UGIB.[10-11] However, in the real life situation, emergency EGD is seldom available in most hospitals due to the difficulty of setting up emergency services in non-official time, an insufficiency of well-trained endoscopists and medical teams and lack of equipment. Thus, most patients are usually treated medically for a period of time before being referred for EGD at the centers with available facilities.

We planned this study so that the validity of upper gastrointestinal bleeding etiology score for determination of variceal bleeding by doing esophagoduodenoscopy as gold standard may be determined and if found satisfactory it may be used for diagnosing the cause of upper gastrointestinal bleeding as variceal or non variceal at non specialist institutes lacking the facility for esophagoduodenoscopy, providing the empiric treatment for upper gastrointestinal bleeding and avoiding the delay regarding specific treatment.

The results of the study reveal majority of the patients i.e. 30.83%(n=37) between 51-60 years of age, mean and standard deviation was recorded as 35.64±7.75 years, 55.83%(n=67) female and 44.17%(n=53) were male patients, frequency of variceal bleeding (on esophagoduodenoscopy as gold standard) was recorded in 13.33%(n=16) while 86.67%(n=104) had no variceal bleeding, the validity of upper gastrointestinal bleeding etiology score for determining variceal bleeding by doing esophagoduodenoscopy as gold standard shows sensitivity, specificity, positive predictive value, negative predictive value and accuracy rate was calculated as 78.57%, 95.28%,68.75%, 97.12% and 93.33% respectively.

The result of the study are in agreement with a recent study has shown that upper gastrointestinal bleeding etiology score has a sensitivity of 85% and specificity of 81% in predicting the score of bleeding.[1]

In the present study, the UGIB Etiology Score was developed from these 3 clinical parameters. Using a cutoff of ≥ 3.1, the UGIB Score was shown to be accurate in predicting variceal bleeding. Although a PPV is not very high, a NPV of 97.12% for variceal bleeding is very appropriate in the setting of UGIB where variceal bleeding should never be missed. Therefore, a score < 3.1 will help rule out variceal bleeding with confidence.

There have been very few studies for diagnosing the cause of upper gastrointestinal bleeding even, no local study is available regarding this topic so I the results of the study may be considered as primary and more studies are required to make more confidence on this etiological score for diagnosing the morbidity.

CONCLUSION

The result of the study determined that etiology score for determining variceal bleeding by doing esophagoduodenoscopy as gold standard is valid and having considerable specificity and sensitivity in patients presenting with upper gastrointestinal bleeding

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