The Glasgow Blatchford Score Is Associated With the Need For Endoscopic Intervention and Blood Transfusion in Patients With Upper Gastrointestinal Bleeding

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Introduction

At an incidence of 48-160/100,000 individuals, upper gastrointestinal bleeding (UGIB) is the most common gastroenterological emergency, in the United States,[1] accounting for 300,000 hospitalizations and $3.3 billion in healthcare spending, yearly.[2] The Glasgow Blatchford Score (GBS), a quick tool that uses non-endoscopic criteria[3] for clinical stratification of UGIB,[4-6] allows for early diagnosis and outcome prediction, including need for intervention.

Problem + Hypothesis

The goals of this study are to determine the GBS scores of patients ≥18 years, who were admitted for UGIB at McLaren Macomb Medical Center (MMMC) and underwent esophagogastroduodenoscopy (EGD) between July, 2018 and July, 2020, and if the need for endoscopic intervention and blood transfusion are related to GBS in patients with UGIB.

Materials + Methods

This is a cross-sectional retrospective study that included patients as described in the above hypothesis section. The patient encounters of interest were identified using international classification of disease (ICD 10) procedure codes for EGD. Demographics and the need for intervention or blood transfusion, variables comprising GBS, and other explanatory variables were extracted from electronic medical records.

Need for endoscopic intervention is defined as banding, epinephrine injection, hemospray use, cautery, clip placement, or a combination of these tools.

Frequencies, percentages, and student T-test were used when appropriate. A stepwise regression analysis was performed to determine predictors of GBS. SPSS version 25 was used to analyze the data. Statistical significance was set at a p < 0.05.

Table 1. Basic demographic data of the study population

Variable	Frequency[J]	Percentage
Age		
>=60	98	72.6
< 60	37	27.4
Gender		
Female	70	51.9
Male	65	48.1
Presence of Comorbidity		
No	8	5.9
Yes	127	94.1
Presence of GI malignancy		
No	130	96.3
Yes	26	19.3
Ever Been diagnosed with any malignancy		
No	109	80.7
Yes	26	19.3
Use of Antiplatelets		
No	86	63.7
Yes	49	36.3
Using Dual Antiplatelet		
No	118	87.4
Yes	17	12.6
Use of NSAID		
No	112	83.0
Yes	23	17.0
Using Blood Thinners		
No	108	80.0
Yes	27	20.0
Using Antiplatelets and blood thinners		
No	120	88.9
Yes	15	11.1
History of bleeding disorder		
No	132	97.8
Yes	3	2.2
Hepatic disease		
No	114	84.4
Yes	21	15.6
History of HF		
No	108	80.0
Yes	27	20.0

J Frequencies may not reflect the total study participant due to missing data.
φ SD= standard deviation.
λ CI= confidence interval

Table 1: Basic demographic information

Table 2 GBS mean scores associated with need for hemostatic intervention*

Variable	Frequency	Percentage	GBS Mean	ΔMean GBS	CI[λ]	P[ʃ]
Hemostatic intervention						
Yes	24	17.8	13.13 (3.28)	1.493	(0.034, 2.951)	0.004
No	111	82.2	10.62 (3.83)			
Blood transfusion						
Yes	65	48.1	13.12 (2.68)	3.486	(2.36, 4.62)	0.000
No	70	51.9	9.16 (3.80)			
Age group						
≤ 60	37	27.4	9.38 (4.11)	-1.77	(-2.91, -0.431)	0.002
> 60	98	72.6	11.70 (3.57)			

* Stepwise multi-regression module was performed including age as a confounding factor.
λ CI= confidence interval
ʃ P values are considered significant if < 0.05

Table 2: GBS mean scores associated with need for hemostatic intervention

Results

- A total of **135 observations** were included in this analysis
- We found that GBS was statistically significantly related to the need for intervention, blood transfusion, and age group
- Those who needed hemostatic intervention scored 1.493 [mean GBS 13.13±3.28 versus 10.62±3.83 (P=0.004)] higher
- Those who needed blood transfusion scored 3.486 [mean GBS 13.12 ±2.68 versus 9.16±3.80 (P=0.000)] higher
- Those who are ≤60 years-old scored 1.77 [mean GBS 9.38±4.11 versus 11.7±3.57 (P=0.002)] less

Discussion + Significance

- Our study is among a few that investigated and found a mean GBS associated with need for intervention and blood transfusion
- No patients were noted to have a GBS ≤2, indicating successful evidence-based allocation of resources, as a GBS ≤1 to ≤2 is associated with safe outpatient management
- Even at higher GBS, we may be able to further stratify patients' risk and predict need for intervention and blood transfusion. Further research is needed to investigate this nuance
  - Helping to further allocate inpatient resources appropriately at MMMC
- GBS takes into account multiple aspects of a patient's presentation, from bloodwork to physical exam, honing into **osteopathic** principles of evaluating patients

References + Acknowledgements

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