Utilization of Risk Stratification Scores To Triage Patients With GI Bleed: A Retrospective Cohort Analysis

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LEARNING OBJECTIVES

Gastrointestinal (GI) bleeding affects 30-40 per 100,000 hospitalized patients annually. Many of these patients can have severe bleeding with hemodynamic instability and rapid clinical deterioration, often requiring higher levels of care such as intermediate units (IU) or intensive care units (ICU).

This study aimed to compare various risk stratification tools with patient outcomes to find which tools can best help providers triage patients most appropriately on admission.

METHODS

- This is a single-center retrospective cohort analysis of patients admitted to IU or ICU with GI bleeding as their primary diagnosis from March, 2015 - March, 2021.
- Medical records of patients above 18 years of age were reviewed for baseline characteristics, lab values, 30-day mortality, and 90-day readmission.
- Charlson comorbidity index (CCI), Glasgow-Blatchford Bleeding Score (GBS), AIMS 65, Assessment of Blood Consumption (ABC), quick Sequential Organ Failure Assessment (qSOFA) scores on admission were calculated.
- Patients were compared according to the level of care.
- Pearson Chi-square and Mann Whitney U were applied to compare groups.
- p-value of less than 0.05 was considered significant.

	ICU, n (%) = 104 (34.8%)	IU n, (%) = 195 (65.2%)	p-value
Age, mean ± SD (median, IQR)	65.56 ±14.64 (65.50, 55.25-77.00)	68.75±15.71 (71.00, 57.00-80.00)	0.078
Gender			0.601
Male	57 (54.8%)	113 (57.9%)	
Female	47 (45.2%)	82 (42.1%)	
Race			0.476
Caucasian	69 (66.3%)	126 (64.6%)	
Black	11 (10.6%)	32 (16.4%)	
Hispanic	7 (6.7%)	16 (8.2%)	
Other including data unavailable	17 (16.4%)	21 (10.8%)	
History of HTN	56 (53.8%)	125 (64.1%)	0.155
History of DM	29 (27.9%)	51 (26.2%)	0.747
History of CAD	25 (24%)	78 (40%)	0.006
History of HF	32 (30.8%)	49 (25.1%)	0.296
History of CKD	27 (26%)	53 (27.2%)	0.821
History of Liver disease	23 (22.1%)	35 (17.9%)	0.482
History of DVT/PE	5 (4.8%)	23 (11.9%)	0.047
Personal history of GI tract cancer	10 (9.6%)	24 (12.3%)	0.593
Family history of GI tract cancer	5 (4.8%)	14 (7.2%)	0.625
Use of NSAIDs	17 (16.7%)	23 (11.1%)	0.280
Use of anticoagulants	40 (39.2%)	61 (31.8%)	0.201
Use of antiplatelets	30 (29.4%)	60 (31.1%)	0.766
Use of PPI at home	30 (29.4%)	69 (36.1%)	0.377
Troponin leak	12 (11.5%)	11 (5.6%)	0.172
AKI	48 (46.2%)	46 (23.6%)	< 0.001
Antibiotics	30 (28.8%)	20 (10.3%)	< 0.001
No. of PRBCs, mean ± SD (median, IQR)	3.29 ±2.64 (3.0, 2-4)	2.13 ±2.61 (2.0, 0-3)	<0.01
Endoscopic intervention	41 (39.4%)	59 (30.3%)	0.110
Time to scope, mean ± SD (median, IQR)	1.35±1.78 (1.0, 0.75-2.00)	1.72±1.46 (1.0, 1-2)	0.051
Alive at 30 days	81 (77.9%)	171 (88.1%)	0.020
90-day readmission due to GI Bleed	17 (16.3%)	41 (21%)	0.330

Table 1: Table illustrating the comparison of baseline characteristics, medical history, end organ damage (troponin leak and AKI), 30-day mortality, and 90-day readmission rates, between the patients admitted to intensive care unit and intermediate level of care. ICU – Intensive Care Unit; HTN – Hypertension; DM – Diabetes mellitus; CAD – coronary artery disease; HF – Heart Failure; AF – Atrial Fibrillation; CKD – Chronic Kidney Disease; DVT – Deep venous thrombosis; PE – Pulmonary embolism; NSAIDs – Non steroidal anti-inflammatory drugs; PPI – Proton Pump Inhibitors; AKI – Acute Kidney Injury; PRBC – Packed Red Blood Cells.

RESULTS

- Out of 299 patients admitted with GI bleeding, 195 (65.2%) were admitted to IU and 104 (34.8%) to ICU.
- Baseline characteristics are illustrated in Table 1.
- As for treatment, antibiotics (28.8% ICU vs. 10.3% IU; p< 0.01) and PRBC transfusions (median: 3.0 ICU vs. 2.0 IU; p< 0.01) were more frequently utilized in ICU.
- Outcome variables assessed included need for endoscopic intervention, time to scope, and 90-day readmission rates; no significant difference was seen between groups.
- Patients admitted to the IU had lower 30-day mortality (p=0.02).
- Out of the five scores assessed, GBS, AIM-65, and qSOFA were noted to be statistically significant with score being higher in patients admitted to ICU: median (interquartile range (IQR))– GBS: 12 (9, 14.75) vs. 11.00 (8, 13); p< 0.05; AIM-65: 1 (1,2) vs. 1(0,2); p< 0.01, and qSOFA: 0(0,1) vs. 0(0,1); p< 0.01.No significant difference was noted between the median (IQR) CCI and ABC scores between ICU vs. IU: CCI: 5(3,7) vs. IU: 5 (3,7); p >0.05 and ABC: 0 (0,1) vs. IU: 0 (0,1); p >0.05.

TAKE HOME POINTS

Our study highlights the utility of scoring tools including GBS, qSOFA, and AIM-65 to assist with triaging GI bleed patients to an appropriate level of care. The scores should be calculated at the time of admission for GI bleed patients and those with elevated scores may benefit from closer monitoring in the ICU.

References:
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