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Glasgow Blatchford Scoring System among Dual Antiplatelet Therapy (DAPT) Induced Gastrointestinal (GI) Bleeding Patients in a Tertiary Care Hospital

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Abstract

Background

Antiplatelet therapy has improved the prognosis of atherothrombosis, including stable coronary heart disease (CHD), acute coronary syndrome (ACS), ischemic stroke, and peripheral arterial disease (PAD). However, they are associated with bleeding complications especially gastrointestinal (GI) bleeding. Patients with complaints of GI bleeding have different levels of severities which are categorized using many types of risk scoring systems. Here in this retrospective study, we analyzed for 6 months among 508 patients of a tertiary care hospital in Thiruvalla, who were under the cardiology department between January 2015 and December 2018, and those receiving dual antiplatelet

therapy. And categorized the participants according to the severity of GI bleeding using the Glasgow-Blatchford bleeding score (GBS).

Results

Data were collected from medical records. Categorized the patients using the GBS scale, the majority had no symptoms (89%), followed by 25 subjects with mild (5%), then 24 subjects with moderate (4%), and the least observed in our study were severe (2%) which are the GI bleeding patients. Dual antiplatelet therapy with aspirin and clopidogrel or one of the newer agents is associated with GI bleeding complications.

Conclusion

2% severe risk for gastrointestinal bleeding in patients due to DAPT were found where they required hospitalization and blood transfusion. Categorizing the risk severity was useful to justify that DAPT was solely causing GI bleeding.

Keywords

DAPT, GI Bleeding, GBS ,Aspirin, Clopidogrel.

Introduction

Thrombocytes have an important role in the pathogenesis of atherothrombosis, involved in both the development and encroachment of atherosclerotic heart disease and the attendant acute thrombotic complications. Antiplatelet drugs interfere with platelet function and are useful in the prophylaxis of thromboembolic disorders.[1] Currently, dual antiplatelet therapy (DAPT) is recommended for the treatment and prevention of the complications of atherothrombotic disease. The DAPT is also recommended for patients presenting with acute coronary syndromes and patients undergoing coronary angioplasty with drug-eluting stent implantation to prevent ischaemic recurrences.[2]

However, antiplatelet therapy is associated with bleeding complications and gastrointestinal bleeding has been reported as one of the most common causes of life-threatening complications.[3]

Dual antiplatelet therapy with aspirin and clopidogrel or one of the newer agents impedes platelet activation in complementary, but separate pathways. However, DAPT combining aspirin with one of the newer, more potent agents converts into superior antithrombotic safeguard in atherothrombotic vascular disease, albeit at an amplified, though not inordinately, the risk for bleeding complications.[4]

Patients admitted with a complaint of GI bleeding have an enormous difference from very low risk to very high risk concerning the risk of rebleeding and the need for surgical and endoscopic interventions. Identifying patients with higher risk and surge in their diagnostic and therapeutic management can be an accomplishment towards reducing the burden of the disease, therapeutic and pharmaceutical expenses, and mortality due to this. Therefore, given this concept, many studies have been performed to develop and compare clinical decision rules for the scoring ofpatients regarding the probability of hazardous outcomes. One of the clinical decision rules is a The present study aims to categorize the participants according to the severity of GI bleeding using the GB score.

The Glasgow Blatchford score was developed in 2000 to estimate the necessity for hospital-based intervention (transfusion, endoscopic therapy, or surgery) or death following upper- gastrointestinal bleeding. Patients with a Glasgow Blatchford score of 0 - 3 are considered to be at low risk. The Glasgow-Blatchford Score shown in Table no.1 is accurate for determining the need for intervention in acute upper-

gastrointestinal bleeding in a variety of populations.

According to the scores the risks are categorized as:

a) No symptoms - 0–3

b) Mild - 4–7

c) Moderate - 8–11

d) Severe - 12–23

Table No. 1: Glasgow Blatchford score

Variables	Score
Heart rate (/min) ≥100	1
Systolic blood pressure (mmHg)	
100 – 109	1
90 - 99	2
Less than 90	3
Blood urea nitrogen (mg/dL)	
18.2-22.3	2
22.4-28	3
28-70	4
> 70	6
Blood urea nitrogen (mg/dL)	
12 – 13	1
10 – 11.9	3
Less than 10	6
Hemoglobin (female) (g/dL)	
10 – 11.9	1
Less than 10	6
History of chronic disease	
Hepatic 2	2
Cardiac	2
Symptom	
Melena	1
Syncope	2

Total Glasgow Blatchford score (0–23). Patients with scores >0 are considered to be at high risk

Method

Study Design

This is a retrospective observational The inclusion criteria were patients of age above 18yrs diagnosed with acute coronary syndrome under Dual-antiplatelet therapy and who were on regular follow-up. The exclusion criteria were patients previously diagnosed with GI disorder, who were with

anticoagulant therapy and who had any hepatic dysfunction. The study population included 508 patients.

Setting and duration

The study was conducted for 6 months in the cardiology department. The patients presented to the department and were diagnosed with acute coronary between January 2015 and December 2018 and those receiving dual antiplatelet therapy

Data collection

All patients satisfying the study criteria were enrolled in the study. The required data were retrieved and entered into the pre-designed data collection proforma. Patients were assessed for any symptoms of GI bleeding, or any gastroenterology consultations and the variables according to the GBS scale were measured and thus the patients were classified based on the risk severity.

Statistical analysis

The data collected were entered in Microsoft excel-2010 version and statistically analyzed. Results were presented in tabular form and presented as frequency and percentages.

Study Approval

This study was approved by the Institutional Human Ethics Committee of the institution.

Result

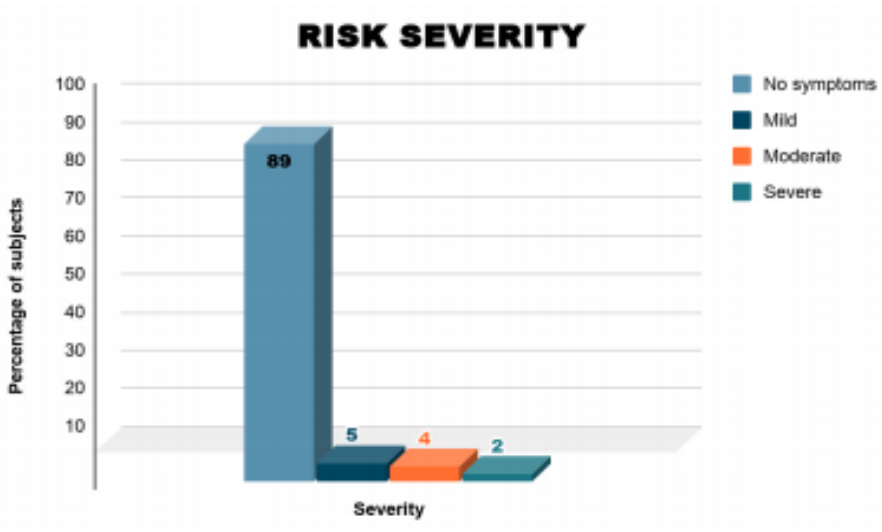
Severity of Risk for Gastrointestinal Bleeding

The severity of risk for GI bleeding among the study group is shown in Table No. 2 and Figure No. 1 When considering the severity based on gender, the female group had a more severe risk than the male group(2.3% vs 1.6% respectively). The majority of the participants had no complications which were 89% (450 subjects) and they did not require any intervention during treatment. Thus out of 508 patients, only 58 patients had GI bleeding risk. Among them, 25 subjects which are 5% belong to mild severity followed by 24 subjects with moderate (4%), and the least observed in our study was severe (2%) which are the definite GI bleeding patients.

Table No. 2: Risk for GI bleeding

S. No	Risk Severity	Range	Frequency	Percentage
1	No Symptoms	0-3	450	89
2	Mild	4-7	25	5
3	Moderate	8-11	24	4
4	Severe	12-23	9	2
Total			508	100

Figure No.1: Risk Severity for gastrointestinal bleeding



Discussion

According to the original report by Blatchford et al., a score of 0 was considered to represent a 'low risk' score in terms of adverse clinical outcomes in cases of UGI bleeding. The objective of the study was to categorize the participants according to the severity of GI bleeding using the Glasgow-Blatchford bleeding score (GBS), Our study population consisted of 508 samples. The Blatchford score was calculated based on the data in the medical records of the patients. Despite its retrospective nature, one of the merits of our study was that some patients with symptoms and signs of GI bleeding seen at the emergency department during the study period were admitted to the hospital for further evaluation and treatment. Thus, we had a complete data set for the period spanning January 2004 to December 2005.

Prior understanding of severity is necessary to provide adequate management for the patient. In our study, the female population was more prone to the risk. Among the GI bleeding risk patients, the majority (89%) had no symptoms, followed by 25 subjects (5%) with mild, then 24 subjects (4%) with moderate and the least observed in our study was severe which are the 9 subjects (2%).(6)

Conclusion

Acute Coronary Syndrome is a broad spectrum of clinical situations from unstable angina to ST-segment elevation myocardial infarction (STEMI). DAPT is recommended for patients presenting with acute coronary syndromes and patients undergoing coronary angioplasty with drug-eluting stent implantation to prevent ischaemic recurrences. The use of antiplatelet agents is narrowed by bleeding complications, most of which arise from the upper gastrointestinal (UGI) tract. It is a recurrent cause of emergency admission and hospitalization.

In our study, we have used a different scaling system to calculate the risk of severity in all the patients receiving the therapy which was found to help to identify high-risk patients and justify that DAPT was solely causing GI bleeding. It could be appropriate for detecting definitely low-risk patients with UGI bleeding even prior to emergency UGI endoscopy in the clinical setting. Further randomized controlled studies should be

performed to confirm the validity of the presently introduced scoring system.

List of Abbreviation

DAPT- Dual Antiplatelet Therapy

CAD - Coronary Artery Disease

ACS - Acute Coronary Syndrome

GBS - Glasgow-Blatchford bleeding score

GIB - Gastrointestinal Bleeding

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