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A TERTIARY CENTER EXPERIENCE ON ACUTE UPPER GASTROINTESTINAL BLEEDING IN PATIENTS WITH CORONARY ARTERY DISEASE

Gastroenterology

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ABSTRACT

Background/Aim: Much higher incidences of upper gastrointestinal bleeding (UGIB) are encountered in patients with Coronary artery disease(CAD). These are due to a number of different factors and are of added clinical importance as a result of the major effect they have on underlying cardiac functioning. We look to analyse the clinical characteristics, endoscopic findings and treatment modalities associated with this increasingly common clinical association.

Patients and Methods: We conducted a Retrospective observational study on 450 consecutive patients admitted with acute UGIB at the Institute of Medical Gastroenterology, Madras Medical College, Chennai. We have collected and analysed data regarding patient as well as clinical characteristics, endoscopic findings and treatment outcomes between CAD and Non-CAD groups.

Result: Of the total 450 Patients admitted with Acute UGIB, 35 were found to be cases of Coronary artery disease. Significant fundamental differences were found between the patient populations with an overall older and sicker CAD group who had higher NSAID, antiplatelet use as well as incidence of chronic kidney disease. The Non-CAD group had a much higher chronic liver disease proportion likely a result of significantly higher alcohol consumption. Endoscopic findings varied quite significantly but overall outcomes and in-hospital stay were not significantly different between the groups.

Conclusion: Our findings indicate that UGIB is largely a result of peptic ulcers in CAD patients, which in turn are predominantly drug induced. NSAIDs appear to be much more commonly used in these patients than expected. H.Pylori is surprisingly low in these patients and appears to be the major culprit in Non-CAD patients. Finally, CAD patients appear to have only a slight, statistically insignificant increase in overall hospital stay and no real difference in overall outcomes.

KEYWORDS

Coronary artery disease(CAD), Helicobacter pylori, upper gastrointestinal bleeding(UGIB)

Introduction

Acute Upper gastrointestinal bleeds(UGIB) are an extremely common cause of admission in tertiary care centres today with a mortality rate between 4% to 12%.(1,2). Another commonly encountered condition is that of Coronary artery disease (CAD) which now accounts for the highest number of deaths worldwide. The management of UGI bleeds in CAD patients is quite common for a number of reasons outlined in the article and the management of which remains controversial. There is generally a hesitancy to subject this population to endoscopic procedures. This is largely for fear of precipitating periprocedural myocardial events which are encountered in almost 10% of high risk patients and worse overall outcomes.

In this study we aim to analyse and compare patient characteristics, clinical presentations and treatment outcomes with regards to UGI bleeds in the CAD vs Non-CAD subgroup of patients.(11)

Definitions

Any form of upper GI bleeding including hematemesis, melena, or haematochezia were regarded as UGIB.

CAD was defined as any patient with prior MI or angiographic evidence of significant coronary compromise (usually >50%). This was different from the previous study by Thanpirom et al where 50% occlusion was included in the CAD group as per NCD(National programme for control of Diabetes) guidelines High risk signs of UGI bleed on upper GI endoscopy were also taken into account. These included, 1a,1b,2a,2b as per the Forrest classification as well as the presence of varices with Red colour sign.

Materials and Methods

We conducted a Retrospective observational study on 450 consecutive patients over the age of 25, admitted with acute UGIB at the Institute of

Medical gastroenterology, Madras Medical College. Institutional review Board approval was obtained and data collection as well as analysis was carried out from 2013 to 2017. On admission patients were subjected to a UGIscopy and managed in accordance with standard upper GI Bleed guidelines. Individual based decision making with regards to mode of intervention, PPI use and blood product usage was left to the discretion of the treating gastroenterologist.

Basic patient data with vitals, details of medication use (especially NSAIDs and anticoagulants), comorbidities, alcohol consumption as well as cardiac status was obtained. Management details including endoscopic features, PPI and blood product use etc were also noted along with overall clinical outcomes.

Data analysis

Analysis was carried out by using SPSS-16 statistical software. A p value <0.05 was considered statistically significant. We described categorical variables using number and percentage and compared groups using Pearson Chi-square test. We described continuous variables using means ± standard deviation (SD) and compared groups using the independent *t*-test (for normally distributed data) and Mann–Whitney test (for non-normally distributed data). Univariate and multivariate regression analyses were performed to identify prognostic factor for poor clinical outcomes.

RESULTS

Patient Particulars

Table I: PATIENT AND CLINICAL CHARACTERISTICS

Patient Parameters	Clinical Parameters		
	Non CAD	CAD	P Value
Age (Years)	50+15	70+20	<0.001
H/o Alcohol Consumption	280 (67.4)	5 (14.2)	<0.001
Chronic Kidney disease	6 (14)	10 (28.5)	<0.001
Chronic Liver disease	101(24 .33)	1(2.85)	<0.001
NSAID use	25 (5.5)	15(42.8)	<0.001
Aspirin/ Clopidogrel usage	1 (0.2)	25 (71.9)	<0.001
Hematemesis	325 (78.3)	20 (27.14)	<0.001
Melena	301 (72)	20 (57)	<0.001
Hematochezia	20 (4.819)	3 (8.57)	0.5
Hemoglobin (g/dl)	10+4	8+4	0.6
INR	1.2+0.6	1.3+1.3	0.7
Glasgow- Blatchford Score	6.4+3.5	8.4+3.1	<0.001
Rockall Score	1.9+1.5	9.5+1.3	<0.001
Hemodynamic Instability	50 (12)	6 (17.14)	0.65
Use of PPI's	360 (86)	29 (82)	0.68

TABLE II: CAUSES OF GASTROINTESTINAL BLEEDING AND ENDOSCOPIC FINDINGS

Patient Parameters	Clinical Parameters		
	Non CAD	CAD	P Value
Peptic Ulcer(Gastric/Duodenal/Both)	150 (33.5)	26 (74.2)	<0.001
Peptic Ulcer (H.pylori related)	110(73.5)	2(0.7)	<0.001
Peptic Ulcer (NSAID related)	6(1.44)	12 (46)	<0.001
Peptic Ulcer (H.pylori and NSAID related)	50(31)	10 (38)	0.71
Malignant Ulcer	05 (1.2)	–	0.78
Esophagitis	15 (3.6)	1 (2.85)	0.68
Gastritis	80 (19.27)	1 (2.85)	<0.001
Duodenitis	40 (9.6)	4(11.42)	0.76
Mallory-Weiss tear	20 (4.8)	1 (2.85)	0.69
Varices	70 (16.86)	1(2.85)	<0.001
Unusual Causes	6 (1.44)	–	

TABLE III: TREATMENT MODALITIES AND OUTCOME

Outcome	Clinical Parameters		
	Non CAD	CAD	P Value
Conservative Management (PPI)	360(86.74)	29 (82)	0.9
Adrenaline Injection	60 (14.45)	4 (11.42)	0.8
Variceal band ligation	55 (13.2)	1(2.85)	0.78
Glue Therapy	3 (0.72)	–	0.69
Rebleeding	10	–	0.69
Death	10(2.40)	–	0.69
Surgery	4	–	0.78
Embolization	1	–	0.61
Length of Hospitalization	10+7	12+6	Not significant

DISCUSSION

As seen in previous studies, the study groups were fundamentally quite different from each other in a number of ways (Table I). The CAD group was older with a higher incidence of comorbidities like CKD and use of antiplatelets and NSAIDs. They generally had a lower baseline Haemoglobin as well as poorer Rockall and Glasgow Blatchford scores. Bleeding more commonly presented as melena or haematochezia rather than frank haematemesis in these patients. The Non-CAD group had higher levels of alcohol consumption and Chronic liver disease with patients most commonly presenting with haematemesis. We found that almost 8% of patients who presented with UGIB had concomitant known CAD.

Hypovolemia, haemodynamic compromise, sympathetic hyperactivity etc. as a result of not only UGIB but also the resulting endoscopic procedure have been postulated to worsen myocardial ischemia.(15) Literature indicates that the peri-endoscopic risk of myocardial infarction is just over 9.2%, this might explain the hesitancy to intervene endoscopically in these patients.(9)

As indicated in Table III, the CAD group had a much higher incidence of peptic ulcer disease while gastritis and varices were more common in the Non-CAD subgroup. In terms of management, majority of patients in both groups were managed conservatively. Variceal band ligation was more commonly employed in the Non CAD group. In terms of outcomes, surprisingly higher incidences of rebleeding, death, need for surgery etc. were encountered in the Non-CAD group. This is possibly a result of the small CAD sample size, but could also indicate that CAD patients tolerate the UGIB and endoscopic procedures much better than conventionally believed. Finally, in-hospital stay, though longer in the CAD group was just marginal and did not achieve statistical significance which further reiterates the previous statement.

We did make a few interesting observations that differed from the findings of prior studies. First was the unexpectedly high incidence of NSAID use in the CAD population despite their known plethora of cardiac adverse effects. They likely compounded the gastro-erosive effects of the concurrent antiplatelets used in these patients and contributed in large part to the high ulcer burden and gastritis in these patients. A deeper look into the extent of NSAID use in is needed along with steps to curb their use, especially in CAD patients.

Another point of note was the extremely low incidence of Helicobacter pylori infection in the CAD group, which was significantly lower than what we found in Non-CAD patients.

Thirdly, our data indicates a much higher incidence of peptic ulcers in CAD patients as compared to previously done studies. Although the etiology likely remains largely drug related.

A multicenter survey from the United Kingdom found that 20% of patients with Acute UGIB had concomitant ischemic heart disease.(8) – Our study says 7.7%

Certain drawbacks do exist in this study, biggest of which is the low sample size in the CAD subgroup. This is likely the result of our cut-off for defining CAD being 70% vessel occlusion which translates into more physiologically significant levels of ischemia, as compared to previous studies that have taken 50% as a cutoff. Secondly, the 2 populations under study are fundamentally very different in a multitude of characteristics. This is largely unavoidable and is a result of the pathology involved i.e CAD affecting a vastly different population than the one commonly presenting with UGIB. Thirdly, further stratification of the severity of CAD might yield further insight into the effect of UGIB and endoscopic intervention on the underlying cardiac function. This can be attempted in future studies with larger CAD populations.

CONCLUSIONS

Our findings indicate that UGIB is largely a result of peptic ulcers in CAD patients, which in turn are predominantly drug induced. NSAIDs appear to be much more commonly used in these patients than expected. H.Pylori is surprisingly low in these patients and appears to be the major culprit in Non-CAD patients. Finally, CAD patients appear to have only a slight, statistically insignificant increase in overall hospital stay and no real difference in overall outcomes.

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