

UPPER GASTROINTESTINAL BLEEDING: FORREST CLASSIFICATION AND REBLEEDING IN PATIENTS WITH PEPTIC ULCER DISEASE AT A TEACHING HOSPITAL IN SOUTHWEST NIGERIA

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ABSTRACT

Background and Aim: Upper gastrointestinal bleeding (UGIB) is a common clinical emergency. In about 50-70% of cases, peptic ulcer is the aetiology. Scoring systems commonly used to stratify patients with UGIB are Rockall, Blatchford and Forrest grading system. The aim of this study was to stratify patients presenting with peptic ulcer bleeding using Forrest classification and assess rebleeding rate.

Methodology: This was a descriptive study of 86 patients with bleeding peptic ulcer disease. After adequate resuscitation with fluids and blood, all the patients had upper gastrointestinal endoscopy according to protocol. At endoscopy, ulcers were graded according to Forrest classification.

Results: The patients comprised 63 (73.3%) males and 23 (26.7%) females. Mean age was 55.9 ± 18.5 years. Frequency of symptoms of UGIB was: 4 (4.7%) patients presented with haematemesis alone, 34 (39.5%) presented with melaena alone, while 48 (55.8%) had both haematemesis and melaena. The ulcers were located in the duodenum in 47 (54.7%) patients. At endoscopy, the Forrest gradings were class III, IIC and IIA in 59 (68.6%), 16 (18.6%) and 6 (7.0%) respectively, class IA was not observed. Rebleeding was observed in 4 (4.7%) patients.

Conclusion: In our practice, most of our patients with peptic ulcer bleeding were low-risk based on Forrest classification and the rebleeding rate was also low. The use of intravenous PPI on all the patients at admission could have been of advantage.

Keywords: Peptic Ulcer Bleeding, Forrest Classification, Rebleeding, Southwest Nigeria

INTRODUCTION

Upper gastrointestinal bleeding (UGIB) is a common clinical emergency with an annual incidence of about 48-160 and 19.4 – 57.0 per 100,000 people in the United States and Europe respectively.¹⁻⁵ In about

50-70% of cases, peptic ulcer is the aetiology, with an overall mortality ranging from 10-14%.⁶⁻⁹ However, in about 80% of cases of UGIB there is spontaneous cessation of bleeding.¹⁰

The International Consensus Guidelines have recommended risk stratification scores which classify patients with UGIB into high and low risks, with the aim of directing appropriate resources to the high-risk patients, while low risk patients can be discharged early.¹¹

It is therefore important to recognise and record endoscopic findings of the stigmata of recent haemorrhage. Scoring systems commonly used to stratify patients with UGIB are Rockall, Blatchford and Forrest grading system. The latter stratify patients into high and low risks which can determine mortality, rebleeding and the need for endoscopic intervention.¹²

The aim of this study was to stratify patients presenting with peptic ulcer bleeding using Forrest classification and assess rebleeding rate after acute UGIB at the University College Hospital, Ibadan.

PATIENTS AND METHOD

This was a descriptive study carried out at the endoscopy unit of the University College Hospital, Ibadan, Nigeria between November, 2015 and July, 2017. A data collection proforma was used to obtain necessary information such as age, gender, symptoms of upper gastrointestinal bleeding (haematemesis, melaena, haematochezia), history of weight loss, jaundice, NSAIDs and alcohol use.

On admission, all the patients were resuscitated with intravenous fluids and blood, and were all commenced on intravenous proton pump inhibitor (PPI), 80 mg stat dose and then 40 mg every 12 hours for at least 72 hours, before switching to oral medication. However, due to haemodynamic instability or financial constraint most of the patients did not have endoscopy within 24 hours of admission. But, all of them had upper gastrointestinal endoscopy (UGIE) before they were discharged.

Informed consent was taken from all the patients both for the study and the procedure. UGIE was carried out with the patients in the left lateral position

after spraying the hypopharynx with 2% xylocaine spray. Conscious sedation with 2.5 mg Midazolam was administered to those patients who could not tolerate the procedure without sedation.

The procedure was carried out with Olympus Exera III Gastroscope (GIF-HQ190). Ulcers when seen were described according to location, size, number, as well as Forrest class. The Forrest class description is as follows: Class IA- ulcer with spurting bleeding; IB- ulcer with oozing bleeding; IIA- ulcer with non-bleeding visible vessel; IIB- ulcer with adherent clot; IIC- ulcer with pigmented spots; class III- ulcer with clean base. All procedures were carried out in accordance with the revised Helsinki Declaration of 2000. The results were analysed using SPSS version 17.0 (SPSS Inc., Chicago, IL,USA). A *p*-value of < 0.05 was taken as statistically significant.

RESULTS

Eighty-six patients, comprising 63 (73.3%) males and 23 (26.7%) females were enrolled into the study, giving a male to female ratio of 2.7:1. The mean age of the patients was 55.9±18.5 years. The frequency of the symptoms of UGIB in the patients was as follows: 4 (4.7%) patients presented with haematemesis alone, 34 (39.5%) presented with melaena alone, while 48 (55.8%) patients had both haematemesis and melaena. Other symptoms observed in the patients are as presented in Table 1.

Table 1: Frequency of symptoms in the patients

Symptom	Frequency	Percent
Haematemesis & Melaena	48	55.8
Dizziness	42	48.8
Abdominal pain	35	40.7
Melaena	34	39.5
Syncope	33	38.4
Weight loss	32	37.2
Early satiety	23	26.7
Haematemesis	4	4.7
Jaundice	1	1.2

Table 2: Forrest classification of ulcers

Forrest class	Frequency	Percent
IB	1	1.2
IIA	6	7.0
IIB	4	4.7
IIC	16	18.6
III	59	68.6

In terms of location, the ulcers were located in the duodenum in 47 (54.7%) patients, stomach in 35 (40.7%) patients, and in both stomach and duodenum in 4 (4.6%) patients. Figure 1. The mean size of the ulcers was 8.15 ± 5.89 mm with a range of 2-25 mm.

According to Forrest classification, the most frequent findings at endoscopy were class III, IIC and IIA in 59 (68.6%), 16 (18.6%) and 6 (7.0%) respectively,

class IA was not observed in any of our patients. Table 2.

In the analysis of the association between NSAIDs, alcohol and Forrest grades, no significant association was observed ($p=0.43$ and 0.91 respectively). Analysis of the symptoms showed that only weight loss was significantly associated with Forrest grades, with weight loss being observed more in the Forrest IIC and III ($p=0.04$). Table 3.

The results also showed that Forrest grade was not significantly associated with age, time of endoscopy, vital signs and number of units of blood received. However, significant association was observed between the size of the ulcer and Forrest grade ($p=0.03$). Forrest grade III had the smallest mean size of ulcer. Table 4.

Active bleeding at endoscopy was observed in only 1 patient and this was Forrest class IB. Rebleeding

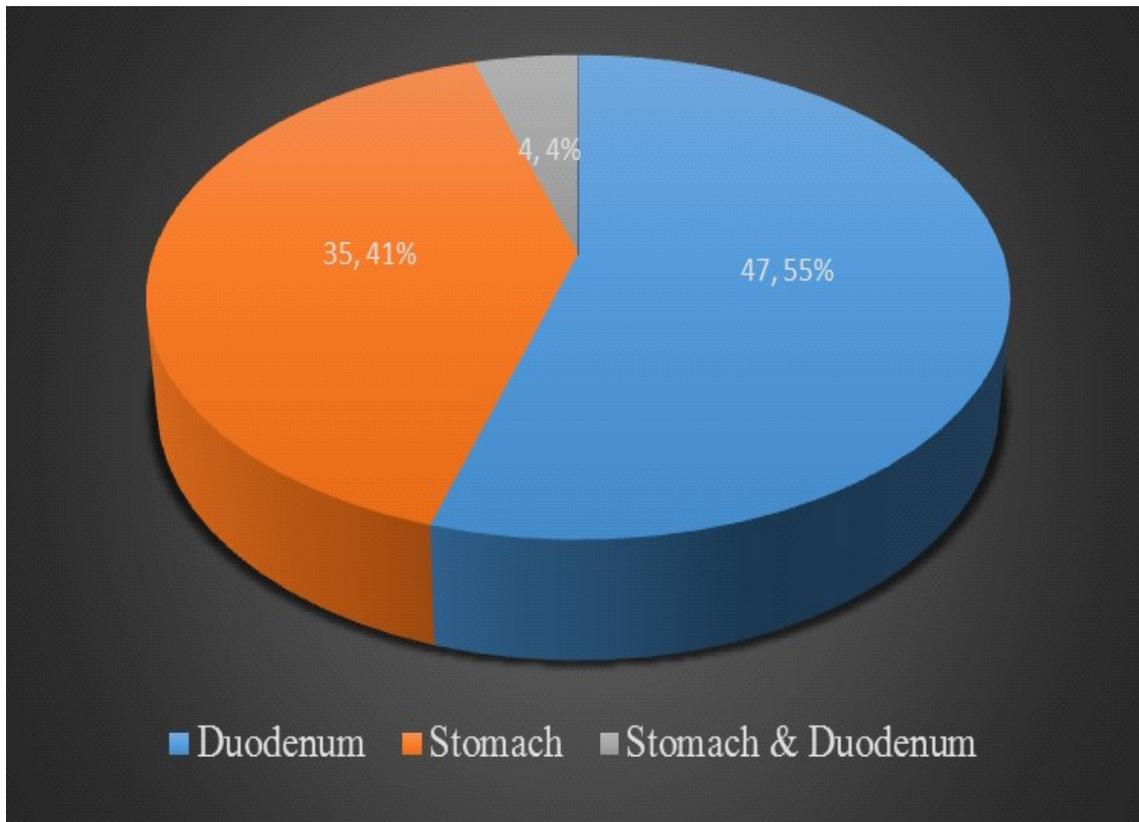


Fig. 1: Location of ulcers

Table 3: Correlation between NSAID, alcohol, symptoms and Forrest grades

Parameter	IIA n (%)	IIB n (%)	IIC n (%)	III n (%)	p-value
NSAID	3 (7.0)	3 (7.0)	10 (23.2)	27 (62.8)	0.43
Alcohol	2 (9.1)	1 (4.5)	4 (18.2)	15 (68.2)	0.91
Haematemesis	4 (7.7)	3 (5.8)	10 (19.2)	35 (67.3)	0.95
Melaena	6 (7.5)	3 (3.8)	16 (20.0)	55 (68.7)	0.31
Weight loss	1 (3.1)	1 (3.1)	11 (34.4)	19 (59.4)	0.04*
Dizziness	4 (9.8)	0 (0)	11 (26.8)	26 (63.4)	0.07
Syncope	3 (9.1)	0 (0)	9 (27.3)	21 (63.6)	0.20
Abdominal pain	2 (5.7)	3 (8.6)	9 (25.7)	21 (60.0)	0.23

*Significant

Table 4: Correlation between the means of some parameters and Forrest grades

Parameter	IIA	IIB	IIC	III	P-value
Age (yrs)	55.6±20.3	74.8±7.1	56.8±21.3	54.6±17.9	0.22
SE	9.1	3.6	5.3	2.3	
95% CI	30.4,80.8	63.4,86.1	45.4,68.1	50,59.3	
Time of Endoscopy after admission (days)	3.8±1.3	1.5±0.7	5.2±3.8	5.3±4.7	0.60
SE	0.6	0.5	1.2	0.7	
95% CI	2.2,5.4	-4.9,7.9	2.5,7.9	3.8,6.8	
Pulse (beats/min)	100±11.1	83.3±8.1	87.1±27.3	91.1±13.2	0.54
SE	6.4	4.7	7.1	1.8	
95% CI	72.3,127.7	63.3,103.4	72,102.2	87.5,94.7	
SBP (mmHg)	122±9.2	153.3±28.9	123.8±23.5	150.5±17.8	0.94
SE	5.3	16.7	6.1	24.0	
95% CI	99.2,144.8	81.6,225	110.8,136.8	102.3,198.6	
DBP (mmHg)	73.3±5.8	80.0±10.0	70.7±11.9	78.5±13.8	0.23
SE	3.3	5.8	3.1	1.9	
95% CI	59,87.7	55.2,104.8	64.1,77.3	74.7,82.2	0.16
Packed Cell Volume (%)	24.8±10.9	24.7±8.6	17.9±6.4	22.6±7.0	
SE	5.5	5.0	1.8	1.1	
95% CI	7.3,42.2	3.2,46.1	14.1,21.8	20.4,24.7	
Ulcer size (mm)	8.2±5.2	11.3±7.5	11.6±6.7	7.0±5.3	0.03*
SE	2.3	3.8	1.7	0.7	
95% CI	1.8,14.6	-0.7,23.2	8.0,15.1	-0.7,5.6	
Units of blood received	3	1.7±0.6	2.8±1.6	2.1±1.4	0.50
SE		0.3	0.5	0.2	
95% CI		0.2,3.1	1.6,4.0	1.6,2.6	

*Significant; SBP- Systolic Blood Pressure; DBP-Diastolic Blood Pressure; SE- Standard Error

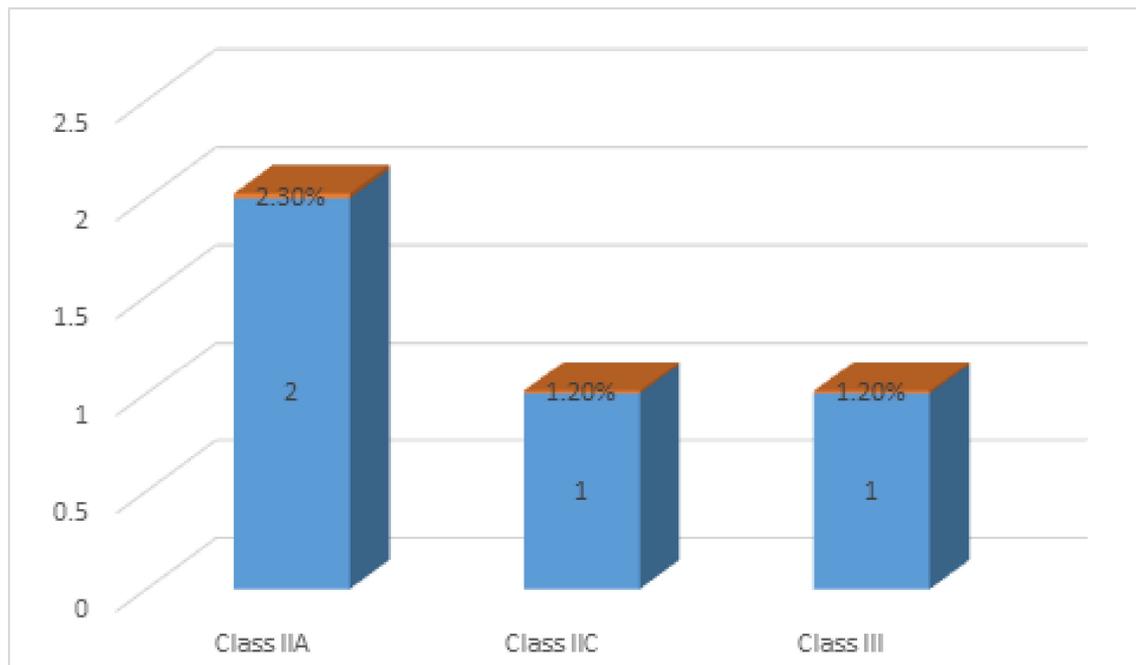


Fig. 2: Rebleeding and Forrest classification

which was defined as bleeding after cessation of the index episode was observed in 4 (4.7%) patients and the Forrest classes are as shown in Figure 2.

DISCUSSION

In this study, the most frequent Forrest grade was class III. This is similar to the finding of Ajayi *et al*¹³ in Ekiti, which is in the same southwest zone of the country. However, in contrast to their study, where 5.8% of their patients were in Forrest class IA, none of the patients in our study was in this class. This might be due to the fact that all their patients underwent emergency endoscopy within 24 hours of admission, whereas most of our patients did not have endoscopy within 24 hours of presentation. It is possible that as the endoscopy is delayed, some of the stigmata of recent haemorrhage tend to disappear. In a study by Yang *et al*⁴ stigmata of recent haemorrhage were found to fade at different times irrespective of endoscopic

local therapy, for instance, non-bleeding visible vessels are said to fade within 3-6 days. As shown in table 4, there was no significant association between the time of endoscopy and Forrest grades, however, the mean time of endoscopy was longest in Forrest IIC and III patients. Although, the timing of upper GI endoscopy in patients presenting with acute GI bleeding has been controversial, some randomized clinical trials (RCT) have suggested endoscopy within 2-24 hours of presentation.^{11,15} It has been observed that endoscopy performed within 12 hours of presentation may improve outcomes.¹⁶ The major reasons why most of our patients could not have endoscopy within 24 hours of presentation were haemodynamic instability and financial difficulty, since patients pay out pocket for the procedure.

In this study, the only patient with active bleeding (Forrest IB) had endoscopic therapy with heater probe in addition to the intravenous PPI prior to endoscopy. In contrast to our study, Ajayi *et al*¹³ utilized endoscopic

epinephrine 1/10,000) injection in addition to intravenous PPI. Although, it has been found that combination epinephrine injection and thermal probe is better than either method alone.¹⁷

The study showed a significant association between the size of the ulcer and the Forrest grade, which may imply that large ulcers have the tendency to belong to high risk Forrest grades. This is similar to the finding of Arkkila *et al*⁸ among patients with *H. pylori* associated peptic ulcer disease. While all the patients in their study were *H. pylori* positive, this was not determined in our patients. Chong *et al*⁹ also observed that bleeding peptic ulcers tend to be larger in size compared to non-bleeding ulcers.

Rebleeding rate in this study was 4.7% which is much lower than that reported in similar studies^{13,20-22} The predominance of Forrest class III in our study could have explained the low rebleeding rate. In the study by Ajayi *et al*³ rebleeding was not observed in Forrest classes IIB, IIC and III. However, Groot *et al*²³ reported a rebleeding rate of 6.5% in Forrest class III patients, but this was still lower than the 15.6% rate observed in class IIC in the same study. In this present study, rebleeding rate was 1.2% in Forrest III but 2.3% in Forrest class IIA. Again, the use of intravenous PPI in all our patients at least for the first 72 hours of admission could have contributed to the low rebleeding rate. Some studies have also demonstrated that intravenous PPIs prevented recurrent bleeding in patients with high risk peptic ulcers.^{24,25}

CONCLUSION

In our practice, most of our patients with peptic ulcer bleeding were low-risk based on the Forrest classification and the rebleeding rate was also low. The use of intravenous PPIs could have been of advantage in this case because, this was the only intervention all the patients received at admission.

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