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Original Research Article

Clinical Profile and Outcome of Upper Gastrointestinal Bleeding in Elderly PatientsCompared to Non-Elderly Patients

Dr. Tushyanth V.[1], Dr. Ganesh. V. Shetty[2], Dr. Sharath P. Madhyastha[3], Dr. Shubha Sheshadri[4]

[1] Consultant Physician, Viva Hospital, Tiruppur, Tamil Nadu, India.
[2]Associate Professor, Department of General Medicine, KMC, Manipal, Karnataka, India.
[3]Associate Professor, Department of General Medicine, KMC, Manipal, Karnataka, India.
[4]Professor, Department of General Medicine, KMC, Manipal, Karnataka, India.

Corresponding Author
Dr. Ganesh. V. Shetty, Associate Professor, Department of General Medicine, KMC, Manipal, Karnataka, India.

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ABSTRACT

Background
This study was conducted to compare the clinical profile of upper gastrointestinal bleeding in elderly subjects (> 60years) and non-elderly subjects (< 60 years).

Methods
This was a hospital-based prospective observational study conducted among 162 patients presenting to the Department of General Medicine, Gastroenterology and Emergency Triage with hematemesis, melena, and hematochezia in whom upper gastrointestinal endoscopy was done in Kasturba Hospital, A Unit of Kasturba Medical College, Manipal. Manipal Academy of Higher Education, from December 1, 2020, to July 31, 2022, after obtaining clearance from the institutional ethics committee and written informed consent from the study participants.

Results
The use of anti-platelets and anti-coagulation was found to be a significant cause of UGI bleeding in the elderly population. Variceal bleeding was more common among the non-elderly patients. The most common endoscopic findings in non-elderly and elderly patients weregrade three oesophageal varices. Endoscopic variceal ligation was the most commonly performed procedure. Re-bleeding was seen in around 27% of the patients. Seven patients expired despite endoscopic measures for hemostasis.

Conclusion
The higher the Rockall score, the higher the risk for re-bleed and mortality. This hasbeen proven by the study.

Keywords:Upper Gastrointestinal Bleeding, Elderly Patients, Non-Elderly Patients.

INTRODUCTION

The clinical condition known as UGIB (Upper Gastrointestinal Bleeding) has a significant effect on the cost of medical care, cause of death, and quality of life. Melena and haematemesis are common symptoms. In 5-10% of patients with severe UGIB, hemotochezia may manifest. Despite improvements in endoscopic and pharmacological therapy, UGIB remains a serious medical emergency with high death and morbidity rates. Bleeding from the GIT at any location

proximal to the Treitz ligament is referred to as UGIB. Effective endoscopic therapy for homeostasis can considerably enhance results outcomes. The gold standard for the diagnosis and treatment of UGIB is an endoscopy. Patients at risk of death and rebleeding are identified using the Rockall scoring method. UGI bleeding is linked to higher mortality and morbidity in the elderly than in the young, which is related tohigher co-morbid illness and higher medication use, including aspirin, NSAIDs and warfarin. In younger age groups, bleeding from duodenal ulcers is more frequent; in middle-aged people, bleeding from gastric ulcers or oesophageal varices is more typical; and in elderly people, bleeding from gastro-oesophageal cancer is more common. Age causes a reduction in pain sensitivity. Up to 50% of elderly people experience this, and regular painkiller usage also causes the pain of gastroduodenal ulcers to be suppressed, delaying detection. Adrenaline injection, endoscopic clipping at the ulcer site to restrict, compress, and/or obliterate the bleeding vessel, and thermal coagulation are the three most often utilized endoscopic hemostatic procedures. Sclerotherapy, APC (Argon Plasma Coagulation), absolute alcohol, or fibrin sealant injection are among other treatment techniques. An interventional radiologist must do either emergency surgery or angiographic embolization when endoscopic treatment is unable to control persistent ulcer bleeding.

AIMS AND OBJECTIVES

- To determine the clinical profile of upper gastrointestinal bleeding in elderly subjects (> 60years) compared to the non-elderly subjects (< 60 years).
- To compare the severity and mortality risk in all patients with upper gastrointestinal bleeding using Rockall score.
- To see in hospital mortality in the two groups.

MATERIALS & METHODS

This was a hospital-based prospective observational study conducted among 162 patients presenting to the Department of General Medicine, Gastroenterology and Emergency Triage with hematemesis, melena, and hematochezia in whom upper gastrointestinal endoscopy was done in Kasturba Hospital, A Unit Of Kasturba Medical College, Manipal. Manipal Academy of Higher Education, from December 1, 2020, to July 31, 2022, after obtaining clearance from the institutional ethics committee and written informed consent from the study participants.

Inclusion Criteria

- Patients presenting to the Department of General Medicine, Gastroenterology and Emergency Triage with hematemesis, melena, and hematochezia for whom upper gastrointestinal endoscopy was performed.
- Patients aged above 18 years.

Exclusion Criteria

- All patients with upper gastrointestinal bleed for whom endoscopy was not done.
- Patients who were unwilling to participate in the study.

Statistical Methods

The UGI scopy reports were collected, classified, and documented as per the proforma. The Rockall score was calculated for each patient. The data was analyzed using the SPSS software.

RESULTS

Age		N	Mean	SD	P-Value
Rockall Score	Elderly	52	5.87	1.89	.0005
	Non Elderly	40	3.68	2.42	
Child Pugh Turcotte Score	Elderly	52	5.81	1.55	.853
	Non Elderly	40	5.75	1.37	
Haemoglobin on Day 1	Elderly	52	8.76	3.53	.456
	Non Elderly	40	9.31	3.43	
Haemoglobin on Day 3	Elderly	43	9.04	2.30	.746
	Non Elderly	30	9.22	2.28	
lobin After Transfusion Of PRBC	Elderly	26	8.55	1.22	.218
	Non Elderly	16	8.02	1.48	
Platelets	Elderly	52	237615.38	81281.20	.791
	Non Elderly	40	243100.00	116228.29	
Blood Urea	Elderly	52	64.17	47.76	.057
	Non Elderly	38	44.79	46.13	
Serum Creatinine	Elderly	52	1.34	1.22	.576
	Non Elderly	40	1.56	2.37	
Total Bilirubin	Elderly	48	1.36	3.33	.719
	Non Elderly	39	1.11	3.14	
AST	Elderly	48	41.63	56.77	.668
	Non Elderly	39	46.54	47.65	
ALT	Elderly	48	28.83	39.66	.833
	Non Elderly	39	30.54	34.93	
Serum Albumin	Elderly	52	2.48	0.67	.626
	Non Elderly	40	2.55	0.68	
Serum Albumin	Elderly	48	3.55	0.69	.122
	Non Elderly	39	3.82	0.90	
PT	Elderly	46	12.47	4.92	.719
	Non Elderly	34	12.16	1.66	
aPTT	Elderly	40	25.65	7.61	.547
	Non Elderly	31	26.78	8.05	
INR	Elderly	46	1.80	4.42	.888
	Non Elderly	34	1.67	3.33	

Table 1: Lab Parameters: Non Variceal Bleed

Age		N	Mean	SD	P-Value
Rockall Score	Elderly	29	7.48	0.87	.0005
	Non Elderly	41	5.98	1.70	
Child Pugh Turcotte Score	Elderly	29	7.86	2.56	.081
	Non Elderly	41	8.93	2.41	
Haemoglobin on Day 1	Elderly	29	8.92	1.75	.740
	Non Elderly	41	8.74	2.56	
Haemoglobin on Day 3	Elderly	23	8.45	1.13	.468
	Non Elderly	32	8.73	1.59	
Hemoglobin after	Elderly	14	8.49	0.87	.762

Transfusion of PRBC	Non Elderly	18	8.40	0.84	
Platelets	Elderly	29	130827.59	61813.12	.498
	Non Elderly	41	116756.10	98116.71	
Blood Urea	Elderly	28	48.07	22.74	.199
	Non Elderly	40	38.80	32.67	
Serum Creatinine	Elderly	29	1.12	0.59	.065
	Non Elderly	40	0.90	0.34	
Total Bilirubin	Elderly	29	2.81	4.11	.917
	Non Elderly	40	2.73	2.34	
AST	Elderly	29	51.31	34.69	.008
	Non Elderly	41	105.24	101.22	
ALT	Elderly	29	25.38	11.25	.065
	Non Elderly	41	38.78	37.27	
Serum Albumin	Elderly	29	2.00	0.76	.113
	Non Elderly	41	1.71	0.75	
Serum Albumin	Elderly	29	3.15	0.58	.079
	Non Elderly	41	2.88	0.66	
PT	Elderly	27	14.57	2.58	.099
	Non Elderly	40	16.14	4.37	
aPTT	Elderly	21	30.28	6.36	.605
	Non Elderly	32	28.87	11.23	
INR	Elderly	27	2.38	5.53	.475
	Non Elderly	41	3.66	8.05	

Table 2: Variceal Bleed

Diagnosis	**Elderly**	**Non-Elderly**	**Total**
Due to Portal Hypertension			
Grade 1-2 Esophageal Varices	3 (3.7%)	12 (14.8%)	15 (9.3%)
Grade 3 Esophageal Varices	24 (29.6%)	29 (35.8%)	53 (32.7%)
Gastric Varices	1 (1.2%)	2 (2.5%)	3 (1.8%)
Congestive Gastropathy	2 (2.5%)	0 (0.0%)	2 (1.2%)
Gave	2 (2.5%)	0 (0.0%)	2 (1.2%)
Total	32 (39.5%)	43 (53.1%)	75 (46.2%)
Not Due to Portal Hypertension			
Gastric Ulcer/Erosions	18 (22.2%)	7 (8.6%)	25 (15.4%)
Duodenal Ulcer/Erosions	10 (12.3%)	8 (9.9%)	18 (11.1%)
Esophageal/Ge Junction Ulcers	7 (8.6%)	3 (3.7%)	8 (6.2%)
Mallory Weiss Tears	5 (6.2%)	6 (7.4%)	11 (6.8%)
Total	40 (49.3%)	24 (29.6%)	62 (39.5%)
Miscellaneous			
Post Gastric Anastomotic Surgery Due to Any Cause	3 (3.7%)	2 (2.5%)	5 (3.1%)
Dieulafoy Lesions	0 (0.0%)	2 (2.5%)	2 (1.2%)
Oesophageal/Gastric Malignancy	2 (2.5%)	1 (1.2%)	3 (1.9%)
Esophageal Candidiasis	0 (0.0%)	2 (2.5%)	2 (1.2%)
Normal Study	3 (3.7%)	5 (6.2%)	8 (4.9%)
Others *	1 (1.2%)	2 (2.5%)	4 (2.5%)
Total	9 (11.1%)	14 (17.4%)	24 (14.8%)

Table 3: Endoscopic Diagnosis

Grade 3 esophageal varices was the most common endoscopic findings in both the elderly (24(29.6%)) and non-elderly (29(35.8%)) age groups.
The second most common endoscopic finding among the elderly was gastric erosion, which was observed in 18 (22.2%) patients. Among the non-elderly, it was grade 1-2 esophageal varices, which was observed in 12 (14.8%) patients.

The proportion of duodenal ulcers and Mallory Weiss tears was nearly the same.

Others in the non-elderly group comprised one each of fundal polyps and altered blood in the GIT without a clear, distinguishable lesion. While post-pyloric sphincterotomy bleeding was only seen in the elderly age group.

Grading of Esophageal Varices	**Elderly**	**Non-Elderly**	**Total**
Grade 1	2 (2.5%)	8 (9.9%)	10 (6.2%)
Grade 2	1 (1.2%)	4 (4.9%)	5 (3.1%)
Grade 3	26 (32.1%)	30 (37.0%)	56 (34.6%)
Classification of Esophageal Varices			
Procedure	**Elderly**	**Non Elderly**	**Total**
Endoscopic Variceal Ligation	22 (27.2%)	32 (39.5%)	54 (33.3%)
Endoscopic Sclerotherapy	6 (7.4%)	4 (4.9%)	10 (6.2%)
Hemoclip asnd Sclerotherapy	0 (0.0%)	1 (1.2%)	1 (1.2%)
Endoscopic Hemostatic Methods for Variceal Bleeding			
Other Methods	**Elderly**	**Non Elderly**	**Total**
Adrenaline Injection and Hemoclipping	1 (1.2%)	0 (0.0%)	1 (0.6%)
Argon Laser Photocoagulation	2 (2.4%)	1 (1.2%)	3 (1.8%)
APC, Adrenaline Injection and Hemospray	0 (0.0%)	1 (1.2%)	1 (0.6%)
Cyanoacrylate Glue Injection	3 (3.6%)	3 (3.6%)	6 (3.6%)
Hemoclipping	7 (8.6%)	1 (1.2%)	8 (4.9%)
Palliative Radiotherapy	1 (1.2%)	0 (0.0%)	1 (0.6%)
Thermiseal Application	0 (0.0%)	1 (1.2%)	1 (0.6%)
Adrenaline Injection	2 (2.4%)	1 (1.2%)	3 (1.8%)
Endoscopic Hemostatic Methods for Non-Variceal Bleeding			
Re-Bleeding	**Elderly**	**Non Elderly**	**Total**
Non Variceal	12 (44.44%)	7 (25.92%)	19 (35.18%)
Variceal	15 (55.55%)	20 (74.07%)	35 (64.81%)
Re-Bleeding in Variceal vs. Non Variceal Bleed			
Table 4			

52 (64.2%) of elderly and 40 (49.4%) of non-elderly had grade 0 oesophageal varices or no varices. Indicating a non-variceal cause in 91 patients (56.2%).
While grade 3 oesophageal varices were present in a total of 56 patients (34.6%). The rest of the patients had grade 1 or grade 2 varices.

Endoscopic variceal ligation was done in 22 elderly patients (27.2%) and 32 non-elderly patients (39.5%).

Endoscopic sclerotherapy is the second most common hemostatic method in both the elderly and non-elderly population. Hemoclipping was used in 8 patients (4.9%).

Cyanoacrylate glue injection was used in 6 patients (3.6%).

The incidence of rebleeding was seen in 27 (33.3%) of the elderly and in 27 (33.3%) of the non-elderly.

However, variceal bleeding was the most common cause of re-bleeding in both age groups. Non-vericeal bleeding had a slightly increased incidence in the elderly (44%).

	Elderly	Non Elderly	Total
Endotherapy for Rebleed	20 (24.7%)	23 (71.6%)	43 (73.5%)
Endotherapy for Rebleed			
	Elderly	**Non Elderly**	**Total**
PRBC Transfusion	40 (49.4%)	36 (44.4%)	76 (46.9%)
PRBC Transfusion In Elderly and Non Elderly			
Type of Bleeding	**Elderly**	**Non Elderly**	**Total**
Variceal	2	1	3
Non Variceal	2	2	4
In Hospital Mortality of Patients Based on Type of Bleeding			
Child Pugh Turcotte Score	**Elderly**	**Non Elderly**	**Total**
A	11 (31.42%)	7 (14.89%)	18 (21.95%)
B	17 (48.57%)	23 (48.93)	40 (48.78%)
C	7 (20.0%)	17 (36.17)	24 (29.26%)
Child Pugh Turcotte Classification			
Table 5			

20 elderly patients (24.7%) and 23 (71.6%) non-elderly patients underwent endotherapy for rebleeding at a later date.

40 (49.4%) elderly and 36 (44.4%) non-elderly required PRBC transfusion due to either severe anemia or ongoing bleeding.

We had a total of 7 patients who expired during hospital stay, with the primary cause being hypovolemic shock due to a massive UGI bleed.

A majority of patients were under class B of CTP in both groups.

DISCUSSION

- The available data was compared with contemporary literature and the utility of the Rockall score in risk stratifications.
- Three contemporary studies all done in India over the last four years have been taken for comparison.

Age

- Sumith et al., studied 380 patients and observed that non-elderly patients (66%) were more compared to the elderly patients (33%). [1]
- Arka et al., recorded 380 patients, with the mean age being 44 $\pm$ 17 years.[2]
- Vishal et al., had 1531 patients enrolled in the study with a mean age of 46 years.[3]

Gender

- Sumith et al. had a male dominance of 77% and 80% in the two groups, respectively.[1]
- Vishal Bodh et al. and Arka Banerjee et al. also noted an increased incidence of male patients.[2,3]
- Few western studies showed that the prevalence of UGIB is twice as common in males.

Presentation

- The most common mode of presentation was hematemesis and melena in both groups, as per Sumith et al.[1]
- According to Vishal et al., melena was twice as common as hematemesis.[2]
- A few western studies by Longstreth and Barkun also observed an increased incidence of isolated [4,5]
- In our study, hematemesis was the most common mode among the non-elderly, while isolated melena was the most common among the elderly.

Etiology

- Alcohol and NSAID were the two most important risk factors, according to Sumith et al.[1]
- Vishal Bodh et al. said that peptic ulcer disease was the commonest cause of AUGIB, followed by portal peptic ulcer disease, which was the second most common cause in the elderly in our study.[2]
- According to Arka Banerjee et al., the most common etiology of UGI bleed was portal hypertension (62.3%), followed by PUD (Peptic Ulcer Disease) (16.7%). [3]
- Chronic liver disease leading to portal hypertension was the most common in both age groups.
- The use of antiplatelets and anticoagulation was found to be a significant cause of UGI bleeding in the elderly population.

Timing of Endoscopy

- 81% of patients underwent endoscopy in the first 24 hours and had significantly different endoscopic findings compared to those who underwent endoscopy later, according to Arka Banerjee et al.[3]
- The timing of endoscopy has not been documented in most of the studies.
- Only a quarter of patients underwent early endoscopy in our study.

Type of Bleeding

- Sumith et al. found that among the elderly patients, a majority (82%) had non-vericeal and only 18% had variceal causes of UGI bleeding.[1]
- The corresponding values in the non-elderly age group were 38% and 62%, respectively.
- The proportion of elderly patients with GI bleeding due to variceal causes is nearly double.
- This is in accordance with our results.

Re-Bleeding

- Re-bleeding was 8% and 10% in the two groups, respectively, as per Sumith et al.[1]
- While 37% of patients experienced rebleeding, according to Arka Banerjee et al., in the first 6 weeks.[3]
- In our study, rebleeding rates are 33% in both groups (no stipulated time frame was used to assess rebleeding).

Endotherapy

- EVL and sclerotherapy were the most commonly used treatment options worldwide for variceal bleeding.

- While patients with non-vericeal bleed underwent argon laser photocoagulation, cyanoacrylate glue injection and hemoclipping, apart from the others. According to the cause.
- 67% of patients with cirrhosis underwent EVL, according to Arka Banerjee et al. [3]
- In our study, EVL and hemoclipping were the most predominant hemostatic methods in the variceal and non-varicel bleed categories.

PRBC Transfusion

- Sumith et al. concluded that the blood transfusion requirement was almost double in the elderly age group compared to the non-elderly population.[1]
- Nearly half of our patients in both groups underwent PRBC transfusion.

Rockall Score

- The increase in Rockall score leads to increased incidence of re-bleeding and death in patients with portal hypotension and peptic ulcer disease, irrespective of age, as found by Arka Banerjee et al.[3]
- The study by Sumit et al. has found that the Rockall score is more than $\geq$2 in 29% of patients in the elderly than 14.9% of patients in the non-elderly age group.[1]
- The minimum Rockall score for death was at least 7 in the elderly age group, while it was 5 in the non-elderly age group.
- Re-bleeding rates progressively increased as the Rockall score
- This study correlates with the re-bleeding and death rates as mentioned in the study by Rockall et al.[6]

CONCLUSION

The majority of patients in both the elderly and non-elderly age groups were males. Hematemesis was the most common presentation among the non-elderly, while melena was the most common presentation among the elderly. Splenomegaly was seen in a majority of patients with variceal bleeding. A few with non-vericeal bleeding also had splenomegaly. Chronic liver disease and portal hypertension due to any cause, including alcohol, was the single most important risk factor.

The use of anti-platelets and anti-coagulation was found to be a significant cause of UGI bleeding in the elderly population. Variceal bleeding was more common among the non-elderly patients. The most common endoscopic findings in non-elderly and elderly patients were grade three oesophageal varices. Endoscopic variceal ligation is the most commonly performed procedure. Re-bleeding was seen in around 27% of the patients. A total of seven patients expired despite endoscopic measures for hemostasis. The higher the Rockall score, the higher the risk for re-bleeding and mortality. This has been proven by the study.

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