

Research Article

Clinical Profile of Filipino Elderly Patients with Upper Gastrointestinal Bleeding Admitted in a Tertiary Hospital: A Retrospective Cohort Study

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Abstract

Background of the Study: Upper Gastrointestinal bleeding (UGIB) remains to be a significant clinical concern for geriatric patients due to their prolonged hospital stay and higher mortality and morbidity rates. The clinical profile of the geriatric patients are important aspects to consider, given that there is limited data in elderly population. **Objective:** The study is aimed to determine the clinical profile of elderly patients with UGIB admitted in a Tertiary Hospital from January 2024 to June 2024. **Methods:** This is a retrospective cohort study among elderly Filipino patients aged 60 years and above; admitted as UGIB and underwent esophagogastroduodenoscopy (EGD). Baseline Demographic, clinical presentation, laboratory results, endoscopic findings, prognosis and predictors of mortality were evaluated. Statistical analysis involved the application of Pearson's chi-square, Fisher's exact test, T-test and univariate and multivariate logistic regression analysis. **Results:** Among 102 admitted elderly patients with UGIB, 67 of them underwent EGD, thus were included in the study; 43 (64.18%) were male and 24 (35.82%) were female with the median age of 69.66 (± 7.40) years. The prevalence rate of UGIB among elderly Filipino is 8.90%. 50 of those patients (74.63%) had comorbidities, the most common were: hypertension 38 (56.72%), diabetes mellitus 19 (28.36%) and chronic kidney diseases (13.43%). Patients presented mostly with melena (67.16%), generalized body weakness (53.73%) and 19.40% had abdominal pain. During endoscopy, (47.76%) was due to gastritis and gastric ulcer (19.40%). Mortality rate was higher in patients admitted at the ICU. No association was noted between the patients' mortality and their sex, age, comorbidities, medications used, clinical findings, INR, BUN, hemoglobin, blood transfusion, and endoscopic findings. **Conclusion:** The present study reported that elderly patients with UGIB were male, with hypertension as the most common comorbidity. EGD findings showed gastritis as the most common cause of UGIB. Mortality rate is higher in patients admitted at the ICU. None of the variables showed significant differences in terms of predictors of mortality.

Keywords

Upper Gastrointestinal Bleed, Elderly, Clinical Profile, Melena, Predictors of Mortality

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1. Introduction

Acute gastrointestinal bleeding is still a frequent reason for hospitalization and is a potentially fatal abdominal emergency. Any bleeding from a source that is close to the Treitz ligament is referred to as upper gastrointestinal bleeding (UGIB) [1]. The incidence of upper GI bleed ranges from 50 to 150/100,000 population annually, and time trend analyses suggest that aged people constitute an increasing proportion of those presenting with acute upper GI bleed [2].

Additionally, acute upper gastrointestinal bleeding is a potentially life-threatening event leading in increased rates of mortality, morbidity and a substantial proportion of hospital admissions in elderly individuals [3]. Several studies have found that aging is an independent predisposing factor for gastrointestinal (GI) bleeding, with the risk increasing significantly in individuals aged more than 65 years and increasing still further in those over 75 years.

When it comes to upper gastrointestinal bleeding, elderly patients tend to present with higher levels of dizziness, altered mental status, higher use of NSAIDs, lower hemoglobin levels at presentation, and a higher likelihood of gastric and duodenal ulcers than younger patients [4]. The following conditions can cause upper gastrointestinal bleeding: gastritis, esophagitis, variceal hemorrhage, Mallory-Weiss syndrome. The high prevalence of comorbidities, such as cardiovascular disease, is likely a contributing factor [5]. Previous studies found early predictors of adverse prognosis in acute UGIB in the elderly, were shock, severe comorbidities, red blood emesis, variceal bleeding, gastric ulcer larger than 2 cm, and units of blood transfused [6].

Correspondingly, studies about elderly with upper gastrointestinal bleeding yield differing results, with melena or hematemesis as the initial presentation [7]. Endoscopy findings also differ in respective studies where duodenal lesion is most prevalent [8], whereas gastritis is the most common EGD finding in other study [9].

At present, there are only a limited number of local studies on upper gastrointestinal bleeding in our country. Furthermore, while a previous study on the elderly population has been published, no additional studies have followed that mainly focuses on elderly patients so far [9].

This study aims to determine the clinical profile of elderly Filipino patients with upper gastrointestinal bleeding and was conducted in Quirino Memorial Medical Center. And in undertaking this study, this could help us to broaden our under-

standing and assess the clinical profile of elderly patients with UGIB which can offer valuable perspectives on the management on this specific age-group.

2. Objectives of the Study

2.1. General Objective

To determine the clinical profile of elderly patients with upper gastrointestinal bleeding admitted in Quirino Memorial Medical Center during January to June 2024.

2.2. Specific Objectives

1. To identify demographic data and prevalence of elderly patients with UGIB.
2. To evaluate the clinical presentations and laboratory findings of elderly patients diagnosed with UGIB.
3. To identify the endoscopic findings of elderly patients with UGIB.
4. To determine the prognosis (ward, ICU) and mortality rate of admitted elderly patients with UGIB.
5. To identify possible clinical predictors of mortality in elderly patients with UGIB.

3. Methodology

This is a retrospective cohort study of elderly patients with UGIB admitted at Quirino Memorial Medical Center from January 2024 to June 2024.

3.1. Inclusion Criteria

Patients aged 60 years old and above admitted as a case of UGIB who underwent EGD.

3.2. Exclusion Criteria

Patients aged >60 years old and above admitted as UGIB but not subjected to EGD, those with incomplete medical records and admitted as lower GI bleeding and cancer-associated bleeding.

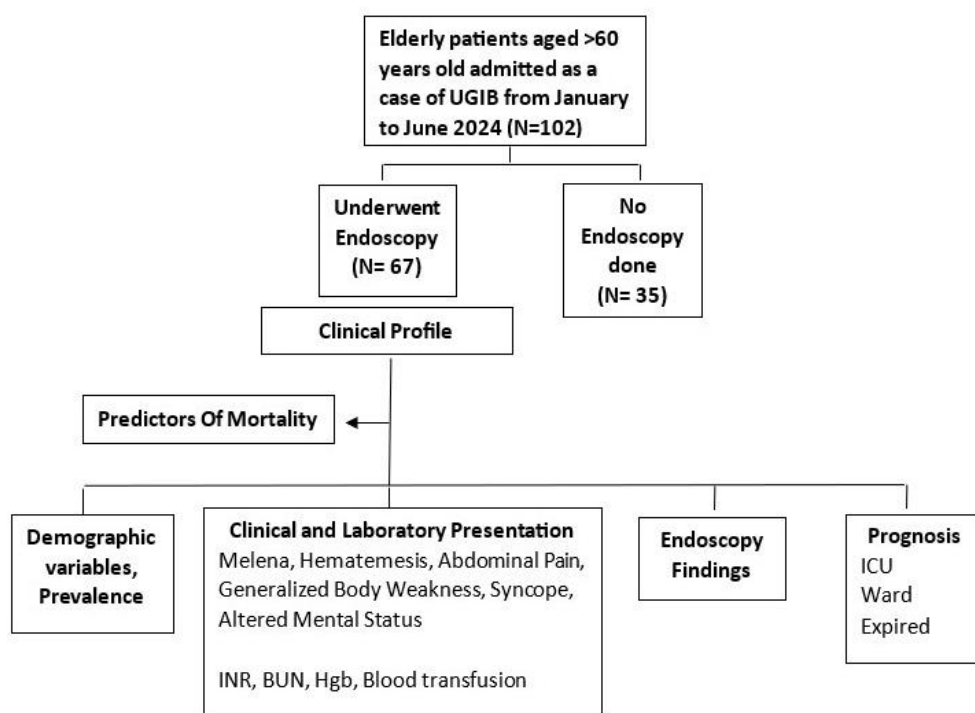


Figure 1. Conceptual Framework.

3.3. Statistical Analysis

The collected categorical data were presented using frequencies and percentages, while the continuous data were presented using means and standard deviation. The student's t-test was used to compare the means of the continuous demographic and clinical data between groups. The Pearson's chi-squared test of independence and Fisher's exact test were used to test the association between the patients' categorical demographic and clinical data and their mortality. The univariate and multivariate logistic regression analyses were used to generate the unadjusted and adjusted odds ratios and coefficients for the patients' mortality given their demographic and clinical data. A 5% significance level was used as the threshold for the statistical analyses. All analyses were conducted using STATA version 16.1 and Microsoft Excel.

4. Results

Table 1. Prevalence of Elderly patients with UGIB.

Number of Admissions	
Patients >60 years old	1445
Patients >60 years old admitted as UGIB	102
Prevalence Rate	8.9%

Table 1 shows that out of 1145 elderly patients admitted, 102 of them were admitted due to UGIB.

Prevalence rate of elderly patients with UGIB admitted at QMMC from January 2024 to June 2024 is 8.90%

Table 2. Demographic data of the patients and Prevalence of Elderly patients with UGIB.

Variables ¹	Frequency (n = 67)	Percentage
Sex		
Female	24	35.82%
Male	43	64.18%
Age		
Mean (\pm Standard Deviation)	69.66 (\pm 7.40) years	
Presence of comorbidities		
Present	50	74.63%
Absent	17	25.37%
Types of comorbidities		
Hypertension	38	56.72%
Diabetes mellitus	19	28.36%
Chronic kidney disease	9	13.43%
Liver cirrhosis	8	11.94%

Variables ¹	Frequency (n = 67)	Percentage
Medications used		
NSAID	17	25.37%
Anticoagulants	14	20.90%

¹Frequencies and percentages are presented for categorical variables, while the means and standard deviations are presented for continuous variables.

Table 2 presents the demographic data of the patients. Among the 67 patients, 24 (35.82%) were females and 43 (64.18%) were males. The mean age of the patients was 69.66 (± 7.40) years. 50 (74.63%) had comorbidities, with 38 (56.72%) having hypertension, 19 (28.36%) having diabetes mellitus, 9 (13.43%) having chronic kidney disease, and 8 (11.94%) having liver cirrhosis. 17 (25.37%) used NSAIDs and 14 (20.90%) used anticoagulants.

Table 3. Clinical findings of the patients.

Variables ¹	Frequency (n = 67)	Percentage
Clinical findings		
Abdominal pain	13	19.40%
Melena	45	67.16%
Hematemesis	8	11.94%
General body weakness	36	53.73%
Syncope	5	7.46%
Altered mental status	4	5.97%

¹Frequencies and percentages are presented for categorical variables, while the means and standard deviations are presented for continuous variables.

Table 3 presents the clinical findings of the patients. 13 (19.40%) had abdominal pain, 45 (67.16%) had melena, 8 (11.94%) had hematemesis, 36 (53.73%) had general body weakness, 5 (7.46%) had syncope, and 4 (5.97%) had altered mental status.

Table 4. Laboratory findings of the patients.

Variables ¹	Mean (\pm Standard Deviation)
INR	1.20 (± 0.14)
BUN	15.59 (± 10.99)
Hemoglobin	79.88 (± 21.73)

Variables ¹	Mean (\pm Standard Deviation)
Blood transfusion	1.58 (± 1.78)

¹Frequencies and percentages are presented for categorical variables, while the means and standard deviations are presented for continuous variables.

Table 4 presents the laboratory findings of the patients. The mean INR, BUN, and hemoglobin levels, and blood transfusion of the patients were 1.20 (± 0.14), 15.59 (± 10.99), 79.88 (± 21.73), and 1.58 (± 1.78), respectively.

Table 5. Endoscopic Findings and Prognosis of the patients.

Variables ¹	Frequency (n = 67)	Percentage
Endoscopic findings		
No active bleeding site	15	22.39%
Duodenal ulcer	4	5.97%
Duodenitis	5	7.46%
Gastric ulcer	13	19.40%
Gastritis	32	47.76%
Esophageal-gastric varices	6	8.96%
Mallory-Weiss tear	2	2.99%
Forrest grade		
Grade 1A	1	1.49%
Grade 1B	1	1.49%
Grade 2A	3	4.48%
Grade 2B	6	8.96%
Grade 2C	9	13.43%
Grade 3	47	70.15%
Disposition		
Admitted to regular ward	56	83.58%
Admitted to Intensive Care Unit	11	16.42%
Mortality		
Survived	59	88.06%
Death	8	11.94%

¹Frequencies and percentages are presented for categorical variables, while the means and standard deviations are presented for continuous variables.

Table 5 presents the Endoscopic findings and Prognosis of the patients. For endoscopic findings, 15 (22.39%) had no

active bleeding site, 4 (5.97%) had duodenal ulcer, 5 (7.46%) had duodenitis, 13 (19.40%) had gastric ulcer, 32 (47.76%) had gastritis, 6 (8.96%) had esophageal-gastric varices, and 2 (2.99%) had Mallory-Weiss tear. For Forrest grade, 1 (1.49%) was classified as Grade 1A, 1 (1.49%) as Grade 1B, 3 (4.48%)

as Grade 2A, 6 (8.96%) as Grade 2B, 9 (13.43%) as Grade 2C, and 47 (70.15%) as Grade 3. For disposition, 56 (83.58%) were admitted to regular ward, and 11 (16.42%) were admitted to ICU. For mortality, 59 (88.06%) patients survived, and 8 (11.94%) patients expired.

Table 6. Comparison of the demographic data, clinical findings, laboratory findings, and prognosis of the patients who survived and expired.

Variables ¹	Survived (n = 59)		Expired (n = 8)		p-values ^{2,3}
	n	%	n	%	
Sex					
Females	22	37.29	2	25.00	0.496
Males	37	62.71	6	75.00	
Age	69.97 (\pm 7.18)		67.38 (\pm 9.02)		0.356
Comorbidities					
Present	43	72.88	7	87.50	0.373
Absent	16	27.12	1	12.50	
Types of comorbidities					
Hypertension	33	55.93	5	62.50	0.725
Diabetes mellitus	16	27.12	3	37.50	0.541
Chronic kidney disease	7	11.86	2	25.00	0.307
Liver cirrhosis	7	11.86	1	12.50	0.959
Medications used					
NSAID	16	27.12	1	12.50	0.373
Anticoagulants	13	22.03	1	12.50	0.534
Clinical findings					
Abdominal pain	12	20.34	1	12.50	0.599
Melena	40	67.80	5	62.50	0.765
Hematemesis	7	11.86	1	12.50	0.959
General body weakness	31	52.54	5	62.50	0.596
Syncope	5	8.47	-	-	0.392
Altered mental status	4	6.78	-	-	0.448
Laboratory findings					
INR	1.19 (\pm 0.12)		1.27 (\pm 0.23)		0.171
BUN	14.65 (\pm 8.57)		22.52 (\pm 21.64)		0.057
Hemoglobin	79.85 (\pm 22.29)		80.13 (\pm 18.29)		0.973
Blood transfusion	1.54 (\pm 1.80)		1.88 (\pm 1.64)		0.623
Endoscopic findings					
No active bleeding site	13	22.03	2	25.00	0.850
Duodenal ulcer	3	5.08	1	12.50	0.406
Duodenitis	5	8.47	-	-	0.392

Variables ¹	Survived (n = 59)		Expired (n = 8)		p-values ^{2,3}
	n	%	n	%	
Gastric ulcer	10	16.95	3	37.50	0.168
Gastritis	28	47.46	4	50.00	0.893
Esophageal-gastric varices	6	10.17	-	-	0.345
Mallory-Weiss tear	2	3.39	-	-	0.597
Forrest grade					
Grade 1A	1	1.69	-	-	0.878
Grade 1B	1	1.69	-	-	
Grade 2A	2	3.39	1	12.50	
Grade 2B	5	8.47	1	12.50	
Grade 2C	8	13.56	1	12.50	
Grade 3	42	71.19	5	62.50	
Disposition					
Admitted to regular ward	55	93.22	1	12.50	< 0.01**
Admitted to ICU	4	6.78	7	87.50	

¹ Frequencies and percentages were presented for categorical variables, while the means and standard deviations were presented for continuous variables.

² Student's t-test was used to determine whether there are statistically significant differences in the means of the continuous variables between the two groups, as appropriate. The Pearson's chi-squared test of independence or Fisher's exact test were used to determine whether there is an association between the categorical variable and the groups, as appropriate.

³ ** signifies that the p-value is statistically significant at the 1% level, while * signifies that the p-value is statistically significant at the 5% level.

Table 6 presents the comparison of the demographic data, clinical findings, laboratory findings, and outcomes of the patients who survived and expired. We find a statistically significant association between the patients' disposition and mortality. Based on the data, we find a higher proportion of patients who were admitted to the ICU expired compared to patients who were admitted to the regular ward.

We find no statistically significant differences in the mean age, INR, BUN, hemoglobin, and blood transfusion between patients who survived and expired. We also find no statistically significant association between the patients' mortality and their sex, presence of comorbidities, medications used, clinical findings, endoscopic findings, and Forrest grade.

Table 7. Univariate and multivariate logistic regression on the patients' mortality given their demographic data, clinical findings, laboratory findings, and prognosis.

Variables	Unadjusted OR / Coefficient	p-values ^{1,2}	Adjusted OR / Coefficient	p-values ^{1,2}
Sex (Baseline: Males)	0.561	0.501	0.396	0.413
Age	-0.052	0.355	-0.041	0.323
Comorbidities (Baseline: None)	2.605	0.388	2.287	0.287
Types of comorbidities (Baseline: None)				
Hypertension	1.313	0.726	1.189	0.601
Diabetes mellitus	1.613	0.544	1.573	0.549
Chronic kidney disease	2.476	0.319	1.475	0.269

Variables	Unadjusted OR / Coefficient	p-values ^{1,2}	Adjusted OR / Coefficient	p-values ^{1,2}
<i>Liver cirrhosis</i>	1.061	0.959	1.095	0.984
Medications used (Baseline: None)				
<i>NSAID</i>	0.384	0.388	0.425	0.445
<i>Anticoagulants</i>	0.505	0.540	0.563	0.617
Clinical findings (Baseline: None)				
<i>Abdominal pain</i>	0.560	0.603	0.470	0.603
<i>Melena</i>	0.792	0.765	0.619	0.633
<i>Hematemesis</i>	1.061	0.959	1.212	0.894
<i>General body weakness</i>	1.505	0.598	1.167	0.682
<i>Syncope</i>	-	-	-	-
<i>Altered mental status</i>	-	-	-	-
INR	3.133	0.184	2.356	0.490
BUN	0.049	0.084	0.028	0.092
Hemoglobin	0.001	0.973	0.001	0.977
Blood transfusion	0.100	0.618	0.099	0.654
Endoscopic findings				
<i>No active bleeding site</i>	1.179	0.850	1.130	0.708
<i>Duodenal ulcer</i>	2.667	0.422	2.429	0.519
<i>Duodenitis</i>	-	-	-	-
<i>Gastric ulcer</i>	2.940	0.182	2.143	0.133
<i>Gastritis</i>	1.107	0.893	1.253	0.385
<i>Esophageal-gastric varices</i>	-	-	-	-
<i>Mallory-Weiss tear</i>	-	-	-	-
Forrest grade (Baseline: Grade 3)				
<i>Grade 1A</i>	-	-	-	-
<i>Grade 1B</i>	-	-	-	-
<i>Grade 2A</i>	0.400	0.577	0.657	0.597
<i>Grade 2B</i>	0.250	0.392	0.261	0.405
<i>Grade 2C</i>	0.238	0.274	0.181	0.312
Disposition (Baseline: Regular ward)	9.625	< 0.01**	9.382	< 0.01**

¹ The logistic regression analysis was used on the patients' mortality given their demographic data, clinical findings, laboratory findings, and outcomes to generate the odds ratios and coefficients. Variables with groups that have no variation in the data, such as when there is only one respondent in the group or when all share the same profile, are dropped from the analyses.

² ** signifies that the p-value is statistically significant at the 1% level, while * signifies that the p-value is statistically significant at the 5% level.

Table 7 presents the results of the univariate and multivariate logistic regression analyses on the patients' mortality given their demographic data, clinical findings, laboratory findings, and prognosis. We find a statistically significant relationship between the patients' mortality and their disposition.

Based on the results, we find that patients who were admitted to the ICU have higher odds of mortality than those who were admitted to the regular ward.

We find no statistically significant relationship between the patients' mortality and their sex, age, comorbidities, medica-

tions used, clinical findings, INR, BUN, hemoglobin, blood transfusion, endoscopic findings, and Forrest grade.

5. Discussion

Upper Gastrointestinal bleeding is a common medical emergency in a tertiary care hospital. Despite advances in diagnostic modalities and therapy, the mortality of GI bleeding has not decreased much during the past 50 years. Most of the patients with GI bleed are elderly and with comorbid conditions, which contribute to the high mortality from GI bleeding [4].

As stated by Mahajan et al, it is recognized that advancing age has been consistently been validated as a risk factor for mortality in elderly patients with upper gastrointestinal bleeding, such that the prevalence also increases with comorbid conditions and the incidence of upper GI bleeding is 2-fold greater in males than in females, in all age groups [6]. A local study by Abella et al, showed that the mean age of elderly patients with UGIB was 61.48 years old with male preponderance of 57.1% [8].

Upper gastrointestinal bleeding occurs more frequently in males, largely due to social behaviors such as alcohol consumption and smoking [10]. As for our study, the mean age of the patients was around 69 years old, among the 67 patients, 35.82% were females and 64.18% were predominantly males and among the participants, 74.63% of the elderly patients with UGIB, had comorbidities.

The incidence of UGIB increases with age probably because of the increased consumption of nonsteroidal anti-inflammatory drugs (NSAIDs) which provoke ulcerogenesis in elderly patients [11]. The use of antiplatelets and anticoagulation was found to be a significant cause of UGIB bleeding in the elderly population [12]. In this study, NSAID use was noted in 25.37% of elderly patients whereas anticoagulant use was 20.90%.

A study by Charatcharoenwitthaya et al and Sharma et al, showed that among elderly patients, melena is the most common symptom [7, 13]. A study by Mahajan et al, showed that melena with hematemesis were the most common symptom among elderly with UGIB. Whereas, this study supports that melena is the most prevalent clinical finding of upper gastrointestinal bleeding among the elderly patients.

In the study done by Tomizawa et al., an elevated BUN level of >21 g/dl and low hemoglobin levels, represents a more profuse bleeding. It was hypothesized that elevated levels of hemoglobin in the digestive tract contribute to the increased BUN levels in the blood [14]. Accordingly, a local study conducted by Sato et al., concluded that a prolonged INR can be one of predictors of mortality [15]. However, in this study, these BUN and INR were not a significant risk factors for mortality.

In addition to the study of Mahajan et al, early endoscopy and endoscopic appearance of certain lesions help in diagnosis and to guide care and thereby reduce rebleeding, re-

quirement for transfusion, the need for surgery, costs and duration of hospitalization. It was concluded that most common type of lesion in these patients with upper GI bleed, 43.54% were due to esophageal varices, and the 2nd most common type was gastric erosion/gastritis of about 15.20%. A local study by Escobar showed, gastritis as the most common endoscopy finding. Our study showed that the most common endoscopic finding in elderly patients with UGIB is gastritis which comprises of about 47.76%.

Early upper GI endoscopy (within 24 h of presentation) is recommended in most patients because it confirms the diagnosis and allows for targeted endoscopic treatment. In our institution, there is typically a delay of 48 to 72 hours between admission and endoscopy due to usual lack of emergency services. As a result, the diagnosis or the present gastric lesion might be missed and the bleeding might be labeled as an obscure bleed.

The outcomes of patients undergoing EGD in the ICU for UGIB are not well elucidated and there are limited existing data regarding endoscopic findings, rate of intervention, and mortality within this population [16]. Previous studies have reported in-hospital mortality rates ranging from 8.7-11.2% for geriatric patients. In our study, 83.58% of elderly patients with UGIB were admitted to regular ward and 16.42% of them were admitted to ICU and with a mortality rate of 11.94%. Moreover, none of the eight patients who demised was due hypovolemic shock.

For patients suffering from GI bleeding, the mortality rate corresponds with increased age. Patients older than 70 years of age have a 20-30 times greater incidence of GI bleeding than patients younger than 30 years [17]. In a study of Emektar et al, mortality rates are affected by the cause of the bleeding and the presence of comorbidities, mean age of 79 years old and their mortality rate was 14.3%. In our study, the mortality rate was 11.94%, hypertension is the most common comorbidity which comprised of 56.72 % and 62.50% of the demised patients had this comorbidity.

Along with this, in a study by Thongbai et al and Emektar et al, low hematocrit levels, comorbidities, cause of bleeding, re-bleeding, number of transfusions are independent predictors of mortality. Nonetheless in this study, age, comorbidities, blood transfusion, EGD findings were not significant factors for the predictors of mortality. The most probable explanation for this result can be attributed to the small size of the study, since a longer study period and participants can yield more data sets that is valuable in this type of study.

6. Conclusion

Through this study, we provided further evidence that gastrointestinal bleeding was more common in elderly male population, predominantly on patient over 69 years of age. This study also concluded that hypertension is the most common comorbidity among elderly patients with UGIB. In clinical aspect, there are several studies showed contrasting

results in initial clinical symptoms of UGIB in elderly patients. In this study, we concluded that melena was the most common presentation, with gastritis as the most prevalent EGD findings. Contradictory to previous studies, age, sex, presence of comorbidities, clinical and laboratory findings, medications used, endoscopic findings have no significant association with predictors of mortality. There is a significant correlation between elderly patients with UGIB admitted at ICU setting are more likely to demise and the mortality rate of elderly patients with UGIB is 11.94%.

The present study is valuable as it focuses on a specific cohort of elderly patients with UGIB. Moreover, this study can provide a valuable foundation for future expanded research on assessment of clinical profile through demographics, comorbidities, interventions, and to lessen the mortality of this specific age group, thereby contributing to the limited studies and imparting improvement in elderly patient care.

7. Recommendations and Limitations of the Study

Based on our research findings, we would like to propose the following recommendations:

- 1) Consider conducting a longer period of study to have a larger sample size. This can contribute in providing a greater number of participants that can aid in further studies in elderly patients with UGIB.
- 2) It would be beneficial to consider conducting a prospective study to validate and expand upon the findings derived from this retrospective study. Mortality causes can also be specifically identified for further correlation.
- 3) Investigating further by conducting a meta-analysis synthesizing previous studies in elderly patients with UGIB, that can provide an extensive overview on this limited type of research.
- 4) Endoscopy schedule of within 24-36 hrs is ideal for patients who were admitted due to active bleeding. This is a confounding factor that may affect the gastric lesion identification at a specific point in time.

Abbreviations

UGIB	Upper Gastrointestinal Bleeding
EGD	Esophagogastroduodenoscopy
ICU	Intensive Care Unit
BUN	Blood Urea Nitrogen
INR	International Normalize Ratio
GI	Gastrointestinal
NSAIDs	Nonsteroidal Anti-Inflammatory Drugs

Conflicts of Interest

The authors declare no conflicts of interest.

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