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Original Article

Endoscopy Timing in Older Adults (≥75 Years) with Upper Gastrointestinal Bleeding Undergoing Esophagogastroduodenoscopy: A Retrospective Cohort Study

Mustafa Sadek[1,*], Alaa Almallouhi[1]

1-Internal Medicine Department, NCH Healthcare System, Naples, FL, USA

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ABSTRACT

Background: International guidelines recommend endoscopy within 24 hours for upper gastrointestinal bleeding (UGIB), yet real-world timing patterns in older adults remain uncertain.
Methods: We conducted a retrospective single-center cohort study of 108 adults aged ≥75 years admitted with UGIB who underwent inpatient esophagogastroduodenoscopy (EGD) between 2023 and 2025. Early EGD was defined as ≤ 24 hours from presentation. Baseline characteristics, endoscopic findings, and clinical outcomes were compared between groups.
Results: Among 108 patients, the mean age was 88.1 ± 6.1 years, the median age was 90 years (IQR 83–93), and 35 (32.4%) underwent early EGD, whereas 73 (67.6%) underwent delayed EGD. Baseline characteristics were broadly similar between groups; however, patients undergoing early EGD were more likely to present with shock, suggesting greater illness severity. The median time to EGD was 29.0 hours (IQR 23.0-45.3). Overall, 28-day all-cause mortality occurred in 5 (4.6%) of 108 patients, with no clear difference between early and delayed EGD groups (1 [2.9%] of 35 vs 4 [5.5%] of 73; absolute risk difference, –2.6%; 95% CI, –10.7% to 9.5%; p = 1.00). No statistically significant differences were observed in ICU admission, length of stay, transfusion requirement, readmission, or endoscopic therapy. Estimates were imprecise due to the small number of events.
Conclusions: No clear difference in short-term outcomes was observed between early and delayed EGD in this cohort of older adults. These findings are descriptive and hypothesis-generating and should be interpreted cautiously given the small sample size, low event count, and potential bias.

1. Introduction

Upper gastrointestinal bleeding (UGIB) is a common and potentially life-threatening condition, particularly in older adults who often have multiple comorbidities and reduced physiological reserve. Prior studies have highlighted the distinct clinical characteristics and outcomes of UGIB in very elderly populations [1].

Current international guidelines recommend performing esophagogastroduodenoscopy (EGD) within 24 hours of presentation [2, 3]. However, variation in endoscopy timing in real-world settings remains common, particularly among older adults. Frailty, comorbidities, and logistical constraints often influence clinical decision-making in this population.

Older adults represent a distinct population with higher comorbidity burden, frailty, and competing risks of mortality, which may modify the relationship between endoscopy timing and outcomes [4]. In this population, factors such as hemodynamic stabilization, anticoagulation management, anesthesia risk, and goals-of-care considerations may influence the timing of endoscopy. However, data describing real-world timing patterns specifically among older adults undergoing inpatient EGD remain limited.

The clinical benefit of early endoscopy in older adults remains uncertain, with mixed evidence from randomized trials and observational studies [5–7]. Therefore, we aimed to describe the timing of endoscopy and associated short-term clinical outcomes among older adults (≥75 years) undergoing inpatient EGD for UGIB.

2. Methods

2.1. Study Design and Population

We conducted a retrospective single-center cohort study of 108 patients aged ≥75 years who were admitted with UGIB and underwent inpatient EGD at a community hospital between 2023 and 2025. Patients aged ≥75 years with a clinical diagnosis of UGIB (e.g., hematemesis, melena, or coffee-ground emesis) were included. Patients were excluded if they did not undergo EGD during hospitalization or had incomplete clinical data. This study included only patients who underwent inpatient EGD; therefore, results reflect timing patterns among scoped patients and do not represent all UGIB admissions.

2.2. Definitions

Early EGD was defined as ≤24 hours from presentation. Delayed EGD was defined as occurring > 24 hours after the initial presentation. Time to endoscopy was calculated from the emergency department arrival timestamp.

* Corresponding author: Mustafa Sadek, Internal Medicine Department, NCH Healthcare System, Naples, FL, USA. Email: sadek.mustafa@outlook.com

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Shock on presentation was defined as systolic blood pressure < 90 mmHg, mean arterial pressure (MAP) < 65 mmHg, the need for vasopressors, or clinical documentation of hemodynamic instability.

Active bleeding on endoscopy was defined as the presence of spurting or oozing hemorrhage, visible vessel, or adherent clot.

2.3. Data Collection

Data were extracted from the electronic medical record system (EPIC) and included demographics, comorbidities, laboratory values, hemodynamic status at presentation, endoscopic findings, and timing metrics. Data collection was performed using a standardized abstraction form.

2.4. Outcomes

Primary outcome: 28-day all-cause mortality

Secondary outcomes: ICU admission, length of stay, transfusion requirements, endoscopic intervention, and 30-day readmission.

Mortality and readmission outcomes were ascertained from available medical records within the health system.

2.5. Statistical Analysis

Continuous variables were compared using Student's t-test or Mann – Whitney U test as appropriate, and categorical variables were compared using chi-square or Fisher's exact test. A two-sided p-value < 0.05 was considered statistically significant. For major binary outcomes, unadjusted absolute risk differences with 95% confidence intervals were calculated. Given the low number of outcome events, analyses were descriptive and unadjusted. Due to the limited available variables, residual confounding by illness severity, comorbidity burden, and frailty cannot be excluded.

3. Results

A total of 108 patients aged ≥75 years were included in the final analysis. The mean age was 88.1 ± 6.1 years, with a median age of 90 years (IQR 83 – 93; range 75 – 100). Using the prespecified definition of early endoscopy as ≤24 hours from presentation, 35 (32.4%) of 108 patients underwent early EGD, and 73 (67.6%) underwent delayed EGD.

Baseline characteristics and endoscopic findings are summarized in **(Table 1)**, and clinical outcomes are presented in **(Table 2)**. Patients in the early and delayed EGD groups were broadly similar in age, hemoglobin, BUN, and major comorbidities, including cirrhosis, chronic kidney disease, and peptic ulcer disease. However, patients undergoing early EGD were more likely to present with shock (5 [14.3%] of 35 vs 1 [1.4%] of 73, p = 0.013), suggesting that patients with greater initial severity may have been prioritized for earlier intervention. No statistically significant differences were observed in active bleeding (4 [11.4%] of 35 vs 7 [9.6%] of 73, p = 0.74) or endoscopic therapy (16 [45.7%] of 35 vs 24 [32.9%] of 73, p = 0.21).

The mean door-to-scope time was 18.2 ± 6.4 hours in the early EGD group and 51.2 ± 44.7 hours in the delayed EGD group (p < 0.001). Across the entire cohort, the median time to EGD was 29.0 hours (IQR 23.0 – 45.3; range 4.0 – 339.0). Timing categories were distributed as follows: 35 (32.4%) of 108 patients underwent EGD within 24 hours, 52 (48.1%) between 24 and 48 hours, and 21 (19.4%) after 48 hours. Clinical outcomes are summarized in **(Table 2)**. Overall, 28-day all-cause mortality occurred in 5 (4.6%) of 108 patients. Mortality was 1 (2.9%) of 35 in the early EGD group and 4 (5.5%) of 73 in the delayed group (p = 1.00), with no clear difference observed between groups. The absolute risk difference for 28-day mortality was -2.6% (95% CI, -10.7% to 9.5%). Similarly, no statistically significant differences were observed in ICU admission (5 [14.3%] of 35 vs 5 [6.8%] of 73, p = 0.29), 30-day readmission (10 [28.6%] of 35 vs 21 [28.8%] of 73, p = 1.00), packed red blood cells (PRBCs) transfusion requirements (mean 1.7 ± 1.4 vs 1.9 ± 1.6 units, p = 0.56), or length of stay (median 3 vs 3 days, p = 0.16). The absolute risk differences were 7.4% (95% CI, -4.0% to 23.0%) for ICU admission, -0.2% (95% CI, -16.8% to 18.6%) for 30-day readmission, and 12.8% (95% CI, -6.2% to 31.6%) for endoscopic therapy. Estimates for all outcomes were imprecise due to the low number of events.

3.1. Descriptive Subgroup Analyses

Given the small number of high-risk presentations and outcome events, subgroup analyses were descriptive and unadjusted. Among patients presenting with shock (6 [5.6%] of 108), mortality occurred in 1 (20.0%) of 5 in the early group and 0 (0%) of 1 in the delayed group. Among patients with active bleeding (11 [10.2%] of 108) or cirrhosis (5 [4.6%] of 108), no deaths were observed. Among patients with high-risk endoscopic stigmata (16 [14.8%] of 108), mortality was 0% (0 of 6) in the early group and 20.0% (2 of 10) in the delayed group. Among patients requiring ≥2 units of PRBCs (59 [54.6%] of 108), mortality was 1 (5.3%) of 19 in the early group and 1 (2.5%) of 40 in the delayed group. Patients undergoing earlier endoscopy also appeared sicker at presentation, particularly with respect to shock.

These findings should be interpreted cautiously, given the very small subgroup sizes.

4. Discussion

In this real-world cohort of older adults with UGIB undergoing inpatient EGD, approximately one-third of patients underwent endoscopy within 24 hours, reflecting variation in timing within this scoped cohort. This finding is consistent with prior large-scale audits demonstrating variability in real-world management of UGIB [8].

Despite guideline recommendations emphasizing early endoscopy, no clear association was observed between early EGD and improved clinical outcomes, including mortality. These findings align with prior randomized and observational studies demonstrating mixed benefits of early endoscopy [5–7]. While early endoscopy facilitates timely diagnosis and therapeutic intervention, its impact on mortality remains inconsistent, particularly in lower-risk populations.

Importantly, our study population comprises an older cohort, in whom outcomes are likely influenced more by baseline comorbidities, frailty, physiologic reserve, and procedural timing. Prior studies have highlighted the distinct clinical characteristics and outcomes of UGIB in very elderly patients [1]. Frailty, a multidimensional syndrome characterized by decreased physiologic reserve and increased vulnerability to stressors, may represent an important unmeasured confounder influencing both timing and outcomes [4]. These factors may have influenced both the timing of endoscopy and the observed outcomes in our study.

Patients undergoing early endoscopy in our cohort were more likely to present with shock, suggesting the presence of selection bias whereby patients perceived to be at higher risk are prioritized for earlier intervention. This phenomenon has been described in prior observational studies and may confound the relationship between timing and outcomes.

Table 1: Baseline characteristics and endoscopic findings by timing of EGD

Variable	Early EGD≤24 h (n=35)	Delayed EGD >24 h (n=73)
Age, mean ± SD, years	88.7 ± 5.8	87.8 ± 6.2
Age, median (IQR), years	90 (86.5–92)	90 (83–93)
Male sex, n (%)	21 (60.0)	34 (46.6)
Shock on presentation, n (%)	5 (14.3)	1 (1.4)
Hemoglobin, mean ± SD, g/dL	7.9 ± 2.1	7.7 ± 2.2
BUN, mean ± SD, mg/dL	45.1 ± 29.1	42.5 ± 21.4
Cirrhosis, n (%)	2 (5.7)	3 (4.1)
CKD, n (%)	6 (17.1)	12 (16.4)
PUD, n (%)	13 (37.1)	24 (32.9)
Active bleeding on endoscopy, n (%)	4 (11.4)	7 (9.6)
Endoscopic therapy performed, n (%)	16 (45.7)	24 (32.9)
Door-to-scope time, mean ± SD, h	18.2 ± 6.4	51.2 ± 44.7
Door-to-scope time, median (IQR), h	20.0 (16.5–23.0)	43.0 (29.0–50.0)

n, number of patients; BUN, blood urea nitrogen; CKD, chronic kidney disease; EGD, esophagogastroduodenoscopy; PUD, peptic ulcer disease; SD, standard deviation; IQR, interquartile range.

Table 2: Clinical outcomes by timing of inpatient EGD

Outcome	Early EGD ≤ 24 h (n=35)	Delayed EGD > 24 h (n=73)	P value	Absolute risk difference, % (95% CI)
28-day all-cause mortality, n (%)	1 (2.9)	4 (5.5)	1.00	-2.6 (-10.7 to 9.5)
30-day readmission, n (%)	10 (28.6)	21 (28.8)	1.00	-0.2 (-16.8 to 18.6)
ICU admission, n (%)	5 (14.3)	5 (6.8)	0.29	7.4 (-4.0 to 23.0)
Endoscopic therapy, n (%)	16 (45.7)	24 (32.9)	0.21	12.8 (-6.2 to 31.6)
PRBCs, mean ± SD, units	1.7 ± 1.4	1.9 ± 1.6	0.56	–
Length of stay, median (IQR), days	3 (2–4)	3 (3–5)	0.16	–

Values are presented as numbers (%), mean ± standard deviation, or median (interquartile range), as appropriate. Absolute risk difference is reported as early esophagogastroduodenoscopy minus delayed esophagogastroduodenoscopy, with 95% confidence intervals, for binary outcomes only. EGD, esophagogastroduodenoscopy; ICU, intensive care unit; PRBCs, packed red blood cells.

The relatively low overall mortality rate observed in this cohort likely reflects advances in supportive care, including early resuscitation, pharmacologic therapy, and modern transfusion strategies [9]. However, the low number of events limits statistical power and may obscure clinically meaningful differences between groups.

Consensus guidelines emphasize early endoscopy and risk stratification as key components of UGIB management, yet timing remains variable [2, 3, 10]. Delayed presentation, the need for clinical stabilization, resource limitations, and institutional workflow challenges may contribute to this variation, although these factors were not directly measured in the present study.

Our findings should be interpreted in light of several important sources of bias. Selection bias is present because only patients who underwent EGD were included. Survivor bias may occur because patients in the delayed group had to survive long enough to receive endoscopy. In addition, confounding by indication is likely, as patients with more severe presentations may have been prioritized for earlier endoscopy. These limitations restrict causal interpretation of the observed associations.

These findings are best interpreted as descriptive and hypothesis-generating and should not be used alone to guide clinical decision-making.

5. Conclusion

In older adults with UGIB undergoing inpatient EGD, no clear difference in short-term outcomes was observed between early and delayed endoscopy. These findings are descriptive and hypothesis-generating and should be interpreted cautiously given the modest sample size, low event count, and potential for bias.

6. Limitations

This study is limited by its retrospective single-center design, modest sample size, and low number of outcome events, which reduced statistical power and resulted in imprecise estimates.

The study included only patients who underwent inpatient EGD and does not represent all UGIB admissions. The analysis does not distinguish between medically appropriate and system-related delays in endoscopy. Code status and goals-of-care limitations

were not available and may represent important sources of residual confounding. Outcomes occurring outside the health system may have been under-captured.

Conflicts of Interest

The authors declare no competing interests that could have influenced the objectivity or outcome of this research.

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Institutional Review Board (IRB)

The IRB approved this study with waiver of informed consent due to its retrospective nature.

Large Language Model

None.

Author Contributions

MS contributed to conceptualization, formal analysis, writing, and revision. AA contributed to data collection, methodology, and drafting.

Data Availability

The data that support the findings of this study are not publicly available due to institutional policies and the presence of protected health information, but are available from the corresponding author upon reasonable request and with permission from the Naples Comprehensive Healthcare System.

References

1. Sadek M, Wasuwanich P, Rasnake M, Provance W. S1426Gastrointestinal Bleeding in the Very Elderly: A Retrospective Cohort of Patients Aged 90 and Older. American Journal of Gastroenterology. 2025;120(10S2):S306-6. [https://doi.org/10.14309/01.ajg.0001133164.23570.89].
2. Gralnek IM, Stanley AJ, Morris AJ, Camus M, Lau J, Lanas A, et al. Endoscopic diagnosis and management of nonvariceal upper gastrointestinal hemorrhage (NVUGIH): European Society of Gastrointestinal Endoscopy (ESGE) Guideline - Update 2021. Endoscopy. 2021;53(3):300-32. [PMID: 33567467, https://doi.org/10.1055/a-1369-5274].
3. Laine L, Jensen DM. Management of patients with ulcer bleeding. Am J Gastroenterol. 2012;107(3):345-60; quiz 361. [PMID: 22310222, https://doi.org/10.1038/ajg.2011.480].
4. Clegg A, Young J, Iliffe S, Rikkert MO, Rockwood K. Frailty in elderly people. Lancet. 2013;381(9868):752-62. [PMID: 23395245, PMCID: PMC4098658, https://doi.org/10.1016/S0140-6736(12)62167-9].
5. Kumar NL, Cohen AJ, Nayor J, Claggett BL, Saltzman JR. Timing of upper endoscopy influences outcomes in patients with acute nonvariceal upper GI bleeding. Gastrointest Endosc. 2017;85(5):945-52 e1. [PMID: 27693643, https://doi.org/10.1016/j.gie.2016.09.029].
6. Lau JYW, Yu Y, Tang RSY, Chan HCH, Yip HC, Chan SM, et al. Timing of Endoscopy for Acute Upper Gastrointestinal Bleeding. N Engl J Med. 2020;382(14):1299-308. [PMID: 32242355, https://doi.org/10.1056/NEJMoa1912484].
7. Lim LG, Ho KY, Chan YH, Teoh PL, Khor CJ, Lim LL, et al. Urgent endoscopy is associated with lower mortality in high-risk but not low-risk nonvariceal upper gastrointestinal bleeding. Endoscopy. 2011;43(4):300-6. [PMID: 21360421, https://doi.org/10.1055/s-0030-1256110].
8. Hearnshaw SA, Logan RF, Lowe D, Travis SP, Murphy MF, Palmer KR. Acute upper gastrointestinal bleeding in the UK: patient characteristics, diagnoses and outcomes in the 2007 UK audit. Gut. 2011;60(10):1327-35. [PMID: 21490373, https://doi.org/10.1136/gut.2010.228437].
9. Jairath V, Kahan BC, Gray A, Dore CJ, Mora A, James MW, et al. Restrictive versus liberal blood transfusion for acute upper gastrointestinal bleeding (TRIGGER): a pragmatic, open-label, cluster randomised feasibility trial. Lancet. 2015;386(9989):137-44. [PMID: 25956718, https://doi.org/10.1016/S0140-6736(14)61999-1].
10. Barkun AN, Almadi M, Kuipers EJ, Laine L, Sung J, Tse F, et al. Management of Nonvariceal Upper Gastrointestinal Bleeding: Guideline Recommendations From the International Consensus Group. Ann Intern Med. 2019;171(11):805-22. [PMID: 31634917, PMCID: PMC7233308, https://doi.org/10.7326/M19-1795].