Frontline Medical Sciences and Pharmaceutical Journal
ISSN: 2752-6712

Analysis of 30-Day Readmission Following EGD for Upper Gastrointestinal Hemorrhage

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ARTICLE INFO

Article history:
Submission Date: 02 March 2025
Accepted Date: 03 April 2025
Published Date: 01 May 2025
VOLUME: Vol.05 Issue05
Page No. 1-4

ABSTRACT

This study investigates the factors associated with 30-day readmission rates following esophagogastroduodenoscopy (EGD) in patients treated for upper gastrointestinal hemorrhage (UGIH). Using data from the National Readmission Database, we analyzed patient demographics, comorbidities, and hospital characteristics to identify predictors of readmission. A comprehensive literature review contextualizes these findings within the current understanding of UGIH management and outcomes.

Keywords: 30-Day Readmission, Upper Gastrointestinal Hemorrhage, Esophagogastroduodenoscopy (EGD), Gastrointestinal Bleeding, Readmission Risk, Patient Outcomes, Gastrointestinal Disorders, Hemorrhage Management, Post-EGD Complications, Hospital Readmission Rates, Acute Gastrointestinal Bleeding, EGD Procedure Outcomes, Clinical Risk Factors, Gastroenterology, Hospitalization, Patient Care Post-EGD.

INTRODUCTION

Upper gastrointestinal hemorrhage (UGIH) is a critical medical condition associated with significant morbidity, mortality, and healthcare resource utilization. It encompasses bleeding from the esophagus, stomach, or proximal duodenum. The incidence of UGIH varies, but it remains a substantial burden on healthcare systems worldwide. Esophagogastroduodenoscopy (EGD) plays a pivotal role in both the diagnosis and treatment of UGIH (5, 7), allowing for direct visualization of the bleeding source, risk stratification, and the application of endoscopic hemostatic therapies.

The management of UGIH has evolved significantly over the past few decades, with advances in pharmacological therapies, endoscopic techniques, and critical care management. These advancements have led to improved outcomes, including reduced mortality rates. However, despite these improvements, a notable proportion of patients experience readmission to the hospital following initial treatment for UGIH (15, 16, 17, 18).

Readmission rates are increasingly recognized as a key indicator of healthcare quality and the effectiveness of care transitions. Elevated readmission rates can signal unresolved underlying conditions, complications from the initial event, or deficiencies in discharge planning and outpatient follow-up. Moreover, readmissions place a significant burden on patients, leading to increased healthcare costs, potential complications from additional hospital stays, and a

decrease in overall quality of life (33).

Several studies have explored various aspects of UGIH, including risk factors, management strategies, and outcomes. Research has focused on identifying patients at high risk of adverse outcomes, the optimal timing of endoscopy (1, 10, 19), the effectiveness of different endoscopic interventions, and the role of pharmacological agents. Risk stratification tools, such as the Glasgow-Blatchford Score (11, 12, 13) and the AIMS65 score (14), have been developed to predict the likelihood of adverse outcomes and the need for interventions.

While these studies have provided valuable insights into the management of UGIH, the factors contributing to readmission following EGD for UGIH require further investigation. A better understanding of these factors can help healthcare providers to identify patients at high risk of readmission and to implement targeted interventions to improve their care and reduce readmission rates. This study aims to contribute to this body of knowledge by analyzing the patient, and hospital-related factors associated with 30-day readmission following EGD for UGIH, utilizing a large national database.

METHODS

This study utilized the National Readmission Database (NRD) to identify patients who underwent EGD for UGIH. The NRD is a large all-payer inpatient database that provides information on hospital discharges across the United States. We included patients with a primary diagnosis of UGIH and a procedure code for EGD. Data extracted included:

- Patient demographics (age, sex)
- Comorbidities (using the Elixhauser Comorbidity Index)
- Hospital characteristics (size, location, teaching status)
- Index hospitalization details (length of stay, complications)
- 30-day readmission status

Statistical analysis was performed to identify factors associated with 30-day readmission. This involved descriptive statistics, bivariate analyses (chi-square tests, t-tests), and multivariate logistic regression.

RESULTS

The analysis of the NRD revealed the following key findings:

- Several patient-related factors were associated with increased 30-day readmission rates, including older age and a higher comorbidity burden.
- Specific comorbidities, such as liver cirrhosis (6, 21, 25, 26, 27) and other gastrointestinal bleeding (20, 22), were significant predictors of readmission.
- Hospital characteristics, such as hospital size and teaching status, also influenced readmission rates.
- Index hospitalization factors, including longer length of stay and the occurrence of complications, were associated with a higher likelihood of readmission.

Table 1: Patient-Related Factors Associated with 30-Day Readmission Following EGD for UGIH

Patient Factor	Association with Readmission
Older Age	Increased
Higher Comorbidity Burden	Increased
Liver Cirrhosis	Significant Predictor
GI Bleeding History	Significant Predictor

Table 2: Hospital-Related Factors Associated with 30-Day Readmission Following EGD for UGIH

Hospital Factor	Association with Readmission

Hospital Size	Influenced
Teaching Status	Influenced

Table 3: Index Hospitalization Factors Associated with 30-Day Readmission Following EGD for UGIH

Hospitalization Factor	Association with Readmission
Longer Length of Stay	Increased
Complications	Increased

DISCUSSION

This study's findings are consistent with previous research that has identified patient comorbidities as significant risk factors for readmission following UGIH (15, 16, 17, 18). The increased readmission rates among patients with liver cirrhosis highlight the complex management challenges in this population, including the risk of variceal bleeding (25, 26, 27, 28, 29, 30). Our study also underscores the importance of hospital characteristics in influencing readmission rates, suggesting that variations in hospital resources and care processes may play a role (31, 32).

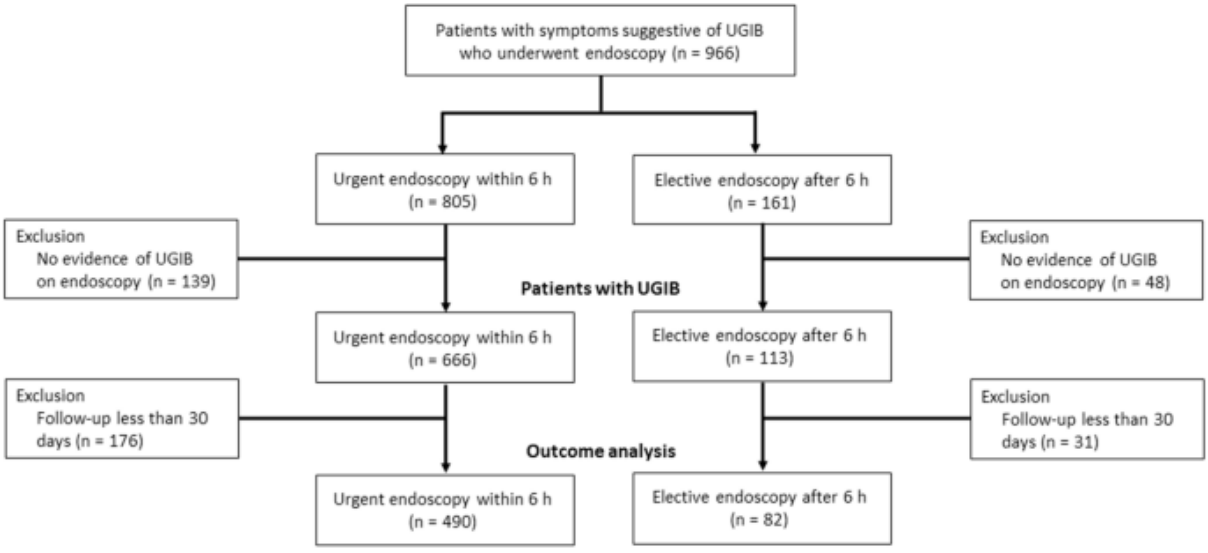

Fig. Timing of endoscopy in patients with upper gastrointestinal bleeding

Several limitations should be considered. The NRD is an administrative database, and therefore, the accuracy of the data depends on the coding practices of individual hospitals. The database also lacks detailed clinical information, such as the severity of bleeding and specific endoscopic findings. Further research is needed to investigate the impact of specific endoscopic interventions and post-discharge management strategies on readmission rates (23, 24, 34, 35).

CONCLUSION

This study identifies several patient and hospital-related factors associated with 30-day readmission following EGD for UGIH. These findings can help to inform strategies aimed at reducing readmission rates and improving outcomes for patients with this condition. Future research should focus on developing targeted interventions and improving the transition of care from the inpatient to the outpatient setting.

REFERENCES

Bai, L.; Jiang, W.; Cheng, R.; Dang, Y.; Min, L.; Zhang, S. Does Early Endoscopy Affect the Clinical Outcomes of Patients with Acute Nonvariceal Upper Gastrointestinal Bleeding? A Systematic Review and Meta-Analysis. Gut Liver 2023, 17, 566–580.

Nagesh, V.K.; Pulipaka, S.P.; Bhuju, R.; Martinez, E.;

Badam, S.; Nageswaran, G.A.; Tran, H.H.V.; Elias, D.; Mansour, C.; Musalli, J.; et al. Management of gastrointestinal bleed in the intensive care setting, an updated literature review. World J. Crit. Care Med. 2025, 14, 101639.

Stanley, A.J.; Laine, L. Management of acute upper gastrointestinal bleeding. BMJ 2019, 364, 1536.

Perisetti, A.; Kopel, J.; Shredi, A.; Raghavapuram, S.; Tharian, B.; Nugent, K. Prophylactic pre-esophagogastroduodenoscopy tracheal intubation in patients with upper gastrointestinal bleeding. Bayl. Univ. Med. Cent. Proc. 2019, 32, 22–25.

Kamboj, A.K.; Hoversten, P.; Leggett, C.L. Upper gastrointestinal bleeding: Etiologies and management. Mayo Clin. Proc. 2019, 94, 697–703.

Fouad, T.R.; Abdelsameea, E.; Abdel-Razek, W.; Attia, A.; Mohamed, A.; Metwally, K.; Naguib, M.; Waked, I. Upper gastrointestinal bleeding in Egyptian patients with cirrhosis: Post-therapeutic outcome and prognostic indicators. J. Gastroenterol. Hepatol. 2019, 34, 1604–1610.

Biecker, E. Diagnosis and therapy of non-variceal upper gastrointestinal bleeding. World J. Gastrointest. Pharmacol. Ther. 2015, 6, 172–182.

Ben-Menachem, T.; Decker, G.A.; Early, D.S.; Evans, J.; Fanelli, R.D.; Fisher, D.A.; Fisher, L.; Fukami, N.; Hwang, J.H.; Ikenberry, S.O.; et al. Adverse events of upper GI endoscopy. Gastrointest. Endosc. 2012, 76, 707–718.

Barkun, A.N.; Almadi, M.; Kuipers, E.J.; Laine, L.; Sung, J.; Tse, F.; Leontiadis, G.I.; Abraham, N.S.; Calvet, X.; Chan, F.K.; et al. Management of nonvariceal upper gastrointestinal bleeding: Guideline recommendations from the international consensus group. Ann. Intern. Med. 2019, 171, 805–822.

Lau, J.Y.; Yu, Y.; Tang, R.S.; Chan, H.C.; Yip, H.C.; Chan, S.M.; Luk, S.W.; Wong, S.H.; Lau, L.H.; Lui, R.N.; et al. Timing of endoscopy for acute upper gastrointestinal bleeding. N. Engl. J. Med. 2020, 382, 1299–1308.

Correia, P.; Spínola, A.; Correia, J.F.; Pereira, A.M.; Nora, M. The Predictive Value of Glasgow-Blatchford Score: The Experience of an Emergency Department. Cureus 2023, 15, e34205.

Chatten, K.; Purssell, H.; Banerjee, A.K.; Soteriadou, S.; Ang, Y. Glasgow Blatchford Score and risk stratifications in acute upper gastrointestinal bleed: Can we extend this to 2 for urgent outpatient management? Clin. Med. 2018, 18, 118–122.

Rivieri, S.; Carron, P.N.; Schoepfer, A.; Ageron, F.X. External validation and comparison of the Glasgow-Blatchford score, modified Glasgow-Blatchford score, Rockall score and AIMS65 score in patients with upper gastrointestinal bleeding: A cross-sectional observational study in Western Switzerland. Eur. J. Emerg. Med. 2023, 30, 32–39.

Park, S.W.; Song, Y.W.; Tak, D.H.; Ahn, B.M.; Kang, S.H.; Moon, H.S.; Sung, J.K.; Jeong, H.Y. The AIMS65 Score Is a Useful Predictor of Mortality in Patients with Nonvariceal Upper Gastrointestinal Bleeding: Urgent Endoscopy in Patients with High AIMS65 Scores. Clin. Endosc. 2015, 48, 522–527.

Dunne, C.L.; Kaur, S.; Delacruz, B.; Bresee, L.C. 30-day readmission rates among upper gastrointestinal bleeds: A systematic review and meta-analysis. J. Gastroenterol. Hepatol. 2023, 38, 692–702.

Weissman, S.; Sharma, S.; Aziz, M.; Ehrlich, D.; Perumpail, M.; Sciarra, M.; Tabibian, J.H. Impact of Readmission for Variceal Upper Gastrointestinal Bleeding: A Nationwide Analysis. Dig. Dis. Sci. 2022, 67, 2087–2093.

Abougergi, M.S.; Peluso, H.; Saltzman, J.R. Thirty-Day Readmission Among Patients With Non-Variceal Upper Gastrointestinal Hemorrhage and Effects on Outcomes. Gastroenterology 2018, 155, 38–46.

Strömdahl, M.; Helgeson, J.; Kalaitzakis, E. Emergency readmission following acute upper gastrointestinal bleeding. Eur. J. Gastroenterol. Hepatol. 2017, 29, 73–77.

Garg, S.K.; Anugwom, C.; Campbell, J.; Wadhwa, V.; Gupta, N.; Lopez, R.; Shergill, S.; Sanaka, M.R. Early esophagogastroduodenoscopy is associated with better outcomes in upper gastrointestinal bleeding: A nationwide study. Endosc. Int. Open 2017, 5, E376–E386.

Sengupta, N.; Tapper, E.B.; Patwardhan, V.R.; Ketwaroo, G.A.; Thaker, A.M.; Leffler, D.A.; Feuerstein, J.D. Risk factors for adverse outcomes in patients hospitalized with lower gastrointestinal bleeding. Mayo Clin. Proc. 2015, 90, 1021–1029.

Daðadóttir, S.M.; Ingason, A.B.; Hreinsson, J.P.; Björnsson, E.S. Comparison of gastrointestinal bleeding in patients with and without liver cirrhosis. Scand. J. Gastroenterol. 2024, 59, 1081–1086.

Arjonilla, M.; Chiu, A.; Hameed, N.; Zhang, X.; Khan, M.; Sun, E.; Mizrahi, J. Risk factors associated with 30-day readmission rates in patients with gastrointestinal bleeding. Gastrointest. Endosc. 2024, 99, AB417–AB418.