

Characteristics and Risk Factors of Upper Gastrointestinal Bleeding in Patients on Antithrombotic Therapy: A Prospective Study

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Abstract

Original Research Article

Study aims: Evaluate the effect of antithrombotic therapy use on endoscopic outcomes in patients admitted for upper gastrointestinal bleeding. **Patients and Methods:** This is a prospective monocentric cross-sectional study of 332 patients conducted between June 2020 and August 2021. We considered as users of AT drugs all patients on antiplatelet agents (low-dose aspirin, thienopyrimidines) and/or anticoagulants (vitamin K antagonists, direct-acting anticoagulants, heparin). **Results:** The average age was 59±16.7 years. Our series was characterised by a clear male predominance of 77.1%. 63 patients (19%) were taking AT drugs (41 antiplatelet, 39 anticoagulant). The two groups differed in age (68 vs 57; $p<0.001$), comorbidities (75.8% vs 16.7%; $p<0.001$), however there was no statistically significant difference in active bleeding at endoscopy (12.7% vs 16.8%; $p=0.425$), and the need for endoscopic haemostasis (7.9% vs 16%; $p=0.1$). In multivariate analysis and adjusting for age, sex, comorbidities, presence of active bleeding and use of antithrombotics, only the presence of active bleeding could predict the need for endoscopic haemostasis. Indeed, the presence of active bleeding at the time of endoscopy multiplies by 26 the risk of recourse to endoscopic haemostasis (OR: 26, CI: 12.9–62.15, $p<0.001$), whereas the use of AT drugs does not influence the need for endoscopic haemostasis (OR: 0.386, CI: 0.105–1.42, $p=0.154$). **Conclusions:** Older patients using AT admitted for UGIB do not appear to have an increased risk of active bleeding at endoscopy or needing endoscopic haemostasis.

Keywords: Upper gastrointestinal bleeding, antithrombotic therapy, endoscopic haemostasis.

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INTRODUCTION

Upper gastrointestinal bleeding (UGIB) is the most common diagnostic and therapeutic emergency in hepatogastroenterology, which can be life-threatening and requires multidisciplinary management [1]. Anti-thrombotic medications (AT) commonly prescribed in cardiovascular disease are considered a recognized risk factor for UGIB. However, few studies have evaluated their effect on endoscopy outcomes in patients admitted for UGIB, and the results remain controversial. The objective of our study is to evaluate the effect of AT use on endoscopy outcomes in patients admitted for UGIB.

METHODS

This is a prospective monocentric cross-sectional study involving 332 patients conducted over a one-year period between June 2020 and August 2021 in the emergency endoscopy department of our hospital. We divided our patients into two groups based on the use or non-use of anti-thrombotic medications. We

considered users of anti-thrombotics to be patients on antiplatelet agents (low-dose aspirin, thienopyrimidines) and/or anticoagulants (vitamin K antagonists, direct-acting oral anticoagulants, heparin). Information regarding demographic, clinical, endoscopic, and therapeutic data was collected, and all these data were entered and analyzed in a database using SPSS version 22.0.

RESULTS

The mean age of our patients was 59 ± 16.7 years, ranging from 17 to 90 years. Our series was characterized by a clear male predominance at 77.1%, with a sex ratio of 2.46. Sixty three patients (19%) were taking AT medications (41 antiplatelet agents, 39 anticoagulants). The AT group differed from the non-AT group in terms of age (68 vs. 57; $p<0.001$), comorbidities (75.8% vs. 16.7%; $p<0.001$), but there was no statistically significant difference regarding active bleeding during endoscopy (12.7% vs. 16.8%;

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$p=0.425$), and the need for endoscopic hemostasis (7.9% vs. 16%; $p=0.1$).

In multivariate analysis, adjusting for the studied parameters including age, sex, comorbidities, presence of active bleeding, and use of antithrombotics, only the presence of active bleeding can predict the need for endoscopic hemostasis. In fact, the presence of active bleeding during endoscopy increases the risk of requiring endoscopic hemostasis by 26 times (OR: 26, CI: 12.9-62.15, $p<0.001$), whereas the use of AT does not influence the need for endoscopic hemostasis (OR: 0.386, CI: 0.105-1.42, $p=0.154$).

DISCUSSION

UGIB is a significant medical emergency that often requires prompt diagnosis and intervention. Among the various risk factors associated with UGIB, the use of AT therapy has gained substantial attention in recent years. AT medications, including antiplatelet agents and anticoagulants, are commonly prescribed for the management of cardiovascular diseases [2].

Firstly, we observed that patients on antithrombotic therapy who developed UGIB tended to be older and had a higher burden of comorbidities compared to non-users. This is in line with previous research highlighting the association between advanced age, comorbid conditions, and an increased risk of gastrointestinal bleeding [3]. The age-related physiological changes, such as decreased mucosal integrity and impaired hemostatic mechanisms, may contribute to the susceptibility of these patients to UGIB [4].

Interestingly, contrary to initial expectations, our study did not find a significant association between the use of antithrombotic medications and the need for endoscopic hemostasis. This suggests that while antithrombotic therapy is a recognized risk factor for UGIB, it may not independently predict the severity or the need for specific interventions in the setting of upper digestive tract bleeding [5]. These findings align with the existing controversial literature on this topic, as some studies have reported an increased risk of severe bleeding episodes requiring intervention, while others have not observed a significant impact [5].

We have this Korean study conducted by Kim *et al* in 2019, which focused on predictive factors for the use of endoscopic hemostasis in cases of active bleeding during upper gastrointestinal bleeding. It was observed that persistent nasogastric bleeding aspiration and a hemoglobin level lower than 8.6 g/dL were independent predictive factors for the need for endoscopic hemostasis [6].

However, our study did identify several factors that were significantly associated with the need for endoscopic hemostasis in this patient population. These

factors included the presence of syncope, hematemesis, elevated blood urea levels, and an increased blood urea nitrogen/creatinine ratio. These findings suggest that specific clinical manifestations and laboratory markers may play a more critical role in predicting the severity and requirement for intervention in patients on antithrombotic therapy.

This very recent Japanese study aimed to evaluate predictive factors for the use of endoscopic hemostasis in patients admitted for non-variceal upper gastrointestinal bleeding (UGIB), based on the development of a new, simplified scoring system using previously utilized scores in daily practice [7]. In this study, it was observed that age, sex, presence of comorbidities, and especially the use of antithrombotic medications were not significantly predictive factors for the need for endoscopic hemostasis. However, it was noted that the presence of syncope, hematemesis, a blood urea level >22.4 mg/dL, and a blood urea nitrogen/creatinine ratio >30 were significantly associated with the need for endoscopic hemostasis during gastroscopy [7].

Based on these results, a new score called the N score, consisting of only these four factors, was established. This score allows for the selection of patients who would require endoscopic hemostasis, with a sensitivity of 84.5% and a specificity of 61.8% when the score is ≥ 2 [7].

It is important to note that our study has some limitations. The study design was prospective, but it was conducted in a single center, which may limit the generalizability of the findings. Additionally, the sample size might have influenced the statistical power to detect smaller effect sizes. Further multi-center studies with larger patient cohorts are warranted to validate our findings and provide more robust evidence on the topic.

CONCLUSION

In conclusion, our prospective study on the characteristics and specificities of UGIB in patients on AT therapy highlights the complex nature of this clinical scenario. While antithrombotic medications are not independently predictive of the need for endoscopic hemostasis, specific clinical features such as syncope, hematemesis, and laboratory markers like elevated blood urea levels can help guide the decision-making process. The proposed N score presents a potential tool for risk stratification in this patient population, allowing for a more tailored approach to management. Further research is needed to refine our understanding of the factors influencing UGIB in patients on antithrombotic therapy and to optimize their management strategies.

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