

Double Trouble: The Deadly Intersection of GI Bleeding and VTE - A Propensity Matched Analysis

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INTRODUCTION

Acute venous thromboembolism (VTE) is a common and serious condition in hospital settings, where anticoagulation is the primary treatment. However, managing patients with concomitant gastrointestinal (GI) bleeding is challenging. This study evaluates the outcomes of VTE hospitalizations in patients with and without secondary diagnoses of GI bleeding.

METHODS

We analyzed adult patients admitted with a primary diagnosis of Acute VTE between 2016 and 2020 using the National Inpatient Sample (NIS) database and ICD-10 coding. Patients were divided into two groups: those with and without GI bleeding. Primary outcomes included **mortality**, **mean length of stay** (LOS), and **hospitalization costs**. Secondary outcomes were the incidence of pulmonary embolism (PE), placement of inferior vena cava (IVC) filters, catheter-directed thrombolysis, requiring intubation and ICU admission and Disposition after discharge. **Propensity score matching** was used to reduce confounding, and analyses were conducted using chi-square tests, t-tests, and logistic regression.

| Primary Outcomes | Non- GI Bleed [(n = 2,144,689) 96.06%] | GI Bleed [(n = 87,930) 3.94%] |
|----------------------------|--|-------------------------------|
| Mortality (%) (p < 0.05) | 5.56% | 14.25% |
| Length of Stay (Days) | 9.67 ± 12.68 | 14.96 ± 17.16 |
| Hospitalization Cost (USD) | 28945.80 | 47865.31 |

| Secondary Outcomes | Non- GI Bleed (n = 87,120) | GI Bleed (n = 87,120) |
|---|----------------------------|-----------------------|
| Pulmonary Embolism* | 23430 (26.89%) | 17515 (20.10%) |
| IVC Filter placement* | 8130 (9.33%) | 20310 (23.31%) |
| Catheter Directed Thrombolysis* | 2130 (2.44%) | 1170 (1.34%) |
| Requiring Intubation and ICU Admission* | 6330 (7.27%) | 12760 (14.54%) |

*(p < 0.05)

| Disposition during Discharge | Home or self care* | Short Term Hospital* | Skilled Nursing Facility* | Home Health Care* |
|------------------------------|--------------------|----------------------|---------------------------|-------------------|
| Non- GI Bleed (n = 87120) | 31945 (36.69%) | 2515 (2.89%) | 27985 (32.14%) | 18055 (20.74%) |
| GI Bleed (n = 87,120) | 20785 (23.86%) | 3725 (4.28%) | 32525 (37.34%) | 16845 (19.34%) |

*(p < 0.05)

Treatment and Procedures:

- IVC filter placement was 2.5x more common in GI bleeding group.
- Less frequent catheter-directed thrombolysis in GI bleed patients (1.34% vs. 2.44%).

Complications:

- GI bleed patients had almost double the need for intubation and ICU admission (14.5% vs. 7.3%).
- More often discharged to skilled nursing/rehab centers.
- Patients without GI bleed had higher incidence of PE (25.91% vs. 20.10%), suggesting withholding anticoagulation might not significantly increase PE risk

RESULTS

Demographics & Risk Factors:

- Among 2,232,619 hospitalizations, 87,390 (3.95%) had secondary GI bleeding.
- Higher odds of GI bleeding in non-White patients: Asian (OR 1.514), Black (OR 1.16), Hispanic (OR 1.09).
- Males more likely to have GI bleeding (OR 1.014).
- Lower GI bleed risk in higher socioeconomic backgrounds (OR 0.934).

Outcomes:

- GI bleed patients had longer length of stay (LOS) (14 vs. 9 days) and higher costs (\$47,865 vs. \$28,945).
- Higher in-hospital mortality in GI bleeding group (14.25% vs. 6.72%).

CONCLUSION

Acute VTE hospitalizations complicated by GI bleeding are more common in males, non-White individuals, and those from lower socioeconomic backgrounds. These cases are associated with higher mortality, longer hospital stays, and increased costs. The increased use of IVC filters and reduced application of catheter-directed thrombolysis in these patients highlight the need for a multidisciplinary approach to improve outcomes.