



Effectiveness and Safety of Prophylactic Anticoagulation among Hospitalized Inflammatory Bowel Disease Patients

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BACKGROUND

- Hospitalized inflammatory bowel disease (IBD) patients are at increased risk of venous thromboembolism (VTE) and mortality.
- Although heparins are used for VTE prophylaxis in the inpatient setting, their use remains low in IBD patients due to:
 - Fear of bleeding complications.
 - Lack of evidence on the relative benefit and risk of anticoagulants in this population.

OBJECTIVE

- To evaluate the effectiveness and safety of prophylactic anticoagulation compared with no anticoagulation in hospitalized IBD patients.

METHODS

Database

- Premier Healthcare Database, service-level all-payer database (January, 2016 to December, 2019).

Study design

- A retrospective cohort analysis (Fig1)

Study cohort

- Patients were included if they:
 - Were ≥ 18 years of age
 - Had a diagnosis of IBD (ICD-10: K50.XX for CD and K51.XX for UC).
 - Had a length of hospital stay longer than 2 days

Exposure

- Patients were considered exposed if they had charge codes for prophylactic-dose heparin within the first 2 days of admission, whereas we classified patients as non-users if they did not receive any anticoagulant.

Outcomes

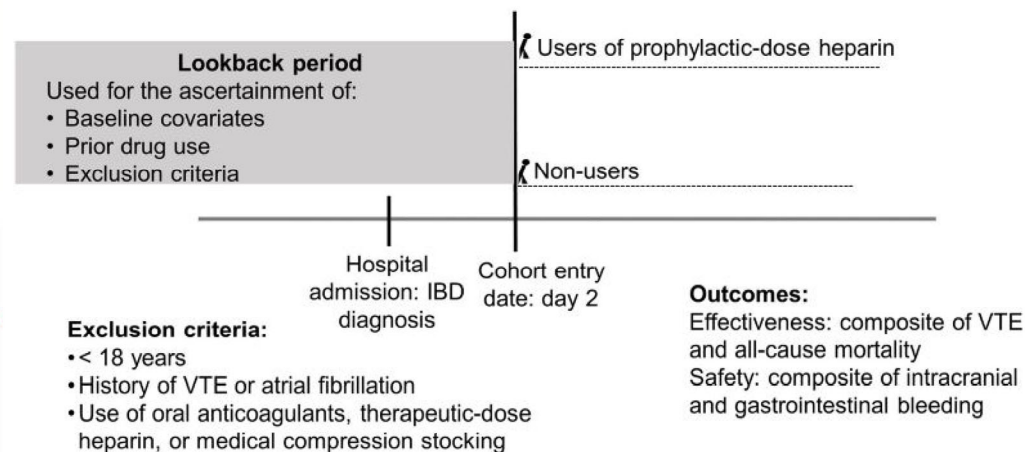
- Effectiveness outcome was a composite of VTE and all-cause in-hospital mortality.
- Safety outcome was a composite of intracranial and gastrointestinal bleeding.

METHODS

Statistical analysis

- Propensity score (PS) matching was used to account for differences between users of and non-users.
- Logistic regression models after PS matching were used to estimate relative risk and 95% confidence interval.
- Mixed effect models were used to account for clustering by hospitals

Figure 1. Study design



RESULTS

- The final cohort included 35,000 IBD patients, 4070 or 11% were prescribed prophylactic heparins.
- The matched sample included 4051 users and 4051 non-users.
- After PS matching, there were no statistically significant differences between users and non-users in baseline characteristics including age, gender, the presence of comorbidities (e.g. stroke, myocardial infarction), and use of medications.

RESULTS

- After adjustment, prophylactic use of anticoagulants (vs. no use) was associated with a lower risk of VTE and all-cause mortality with no difference in bleeding risk.
- Study results remained consistent when stratifying the effectiveness analysis to individual outcomes including VTE and mortality.
- Study results were consistent when using mixed-effect analysis to account for clustering by hospitals.

Outcome	Users		Non-users		Users (vs. non-users)	
	Events, n	Events, n	Adjusted analysis, RR (95% CI)	Mixed effect analysis, RR (95% CI)	Adjusted analysis, RR (95% CI)	Mixed effect analysis, RR (95% CI)
Composite of VTE or all-cause mortality	14	34	0.41 (0.22, 0.77)	0.38 (0.21, 0.72)	0.41 (0.22, 0.77)	0.38 (0.21, 0.72)
VTE	7	22	0.32 (0.14, 0.74)	0.33 (0.14, 0.78)	0.32 (0.14, 0.74)	0.33 (0.14, 0.78)
All-cause mortality	7	13	0.54 (0.21, 1.35)	0.47 (0.19, 1.14)	0.54 (0.21, 1.35)	0.47 (0.19, 1.14)
Bleeding events	106	103	1.03 (0.78, 1.36)	0.83 (0.64, 1.08)	1.03 (0.78, 1.36)	0.83 (0.64, 1.08)

CI= confidence interval, RR= rate ratio, VTE= venous thromboembolism

CONCLUSIONS

- In this study of hospitalized IBD patients, prophylactic use of heparin was associated with a lower risk of VTE and all-cause mortality without increasing bleeding risk compared with no anticoagulation.
- Our results suggest potential benefits for prophylactic anticoagulation to reduce the burden of VTE in hospitalized IBD patients.

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