

## RISK FACTORS FOR VENOUS THROMBOEMBOLISM AFTER HOSPITAL DISCHARGE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE: A SYSTEMATIC REVIEW AND META-ANALYSIS

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**Background:** Inflammatory bowel disease (IBD) is a chronic inflammatory condition which is independently associated with venous thromboembolism (VTE). Although the absolute risk of VTE is greatest during hospitalization, the risk remains elevated in the early post-discharge period. The risk factors for VTE during this vulnerable period remain unknown.

**Aims:** We performed a systematic review and meta-analysis to determine risk factors for VTE in the post discharge period among adult patients with IBD.

**Methods:** We performed a systematic search of Embase, MEDLINE, and the Cochrane Central Register of Controlled Trials from inception through April 29, 2021 for publications that reported risk factors for VTE during the post-discharge period among patients with IBD. Study eligibility was assessed independently in duplicate without age or language restriction. We defined the post-discharge period as within 6 months of discharge. Pooled summary estimates of adjusted hazard/odds ratios, when available, were calculated for individual risk factors using random effects model with 95% confidence intervals. The analysis was performed when a minimum of three studies were available for a given risk factor. Heterogeneity was assessed using  $I^2$  statistic. Study quality was assessed using an adapted version of the National Institute of Health criteria.

**Results:** We identified 10 studies from a total of 4339 abstracts that met our inclusion criteria: 8 population-based studies, 1 multicenter observational study and 1 single center observational study. Risk factors for post-discharge VTE were assessed at 6 weeks in 1 study, 1 month in 5 studies, 3 months in 2 studies, and 6 months in 2 studies. The variables assessed in our meta-analysis are reported in Table 1. Exposure to corticosteroid (odds ratio [OR], 1.77; 95% CI, 1.53-2.06) but not biologics (OR, 1.21; 95% CI 0.80-1.82) was associated with an increased risk of VTE. Furthermore, greater length of stay (OR 1.49; 95% CI, 1.01-2.20), ulcerative colitis (OR 1.41; 95% CI, 1.19-1.66), history of malignancy (OR 1.35; 95% CI, 1.12-1.62), and surgery during admission (OR 1.26; 95% CI, 1.12-1.42) but not female sex (OR 0.98; 95% CI, 0.88-1.10) or surgery type (OR 1.09; 95% CI, 0.75-1.57) were associated with increased risk of VTE after discharge. Overall, the study quality was rated as fair.

**Conclusions:** In our meta-analysis, which consisted of moderate quality of evidence, we identified multiple risk factors associated with VTE in the post-discharge period. This work will help inform which factors should be considered for developing point of care clinical predictive models to help guide when extended VTE prophylaxis is required.

**Table 1: Factors associated with VTE after discharge in IBD patients**

Variable	n studies (n patients)	OR (95% CI)	Heterogeneity (I <sup>2</sup> )
Female (male reference)	9 (1,188,879)	0.98 (0.88-1.10)	71%
Ulcerative colitis (Crohn's disease reference)	7 (351,429)	1.41 (1.19-1.66)	61%
Increased LOS (shorter LOS reference)	4 (258,200)	1.49 (1.01-2.20)	80%
Surgery during admission (no surgery reference)	5 (1,193,232)	1.26 (1.12-1.42)	22%
Laparoscopic surgery (open surgery reference)	3 (30,319)	1.09 (0.75-1.57)	84%
History of malignancy (no malignancy reference)	6 (1,138,629)	1.35 (1.12-1.62)	55%
Biologic exposure (no biologic reference)	3 (12,027)	1.21 (0.80-1.82)	0%
Corticosteroid exposure (no corticosteroid reference)	6 (59,450)	1.77 (1.53-2.06)	0%

OR = Odds ratio; LOS = Length of stay; increased LOS defined as >3 or >7 days

**Funding Agencies:** None