

Extended Thromboprophylaxis Following Major Abdominal/Pelvic Cancer-related Surgery: A Systematic Review and Meta-analysis of the Literature

W. Knoll¹, N. Fergusson², V. Ivankovic³, R. Auer⁴, M. Carrier³

¹Queen's University School of Medicine, Kingston, Canada, ²Schulich School of Medicine & Dentistry, London, Canada, ³Department of Medicine University of Ottawa, Ottawa Hospital Research Institute, Ottawa, Canada, ⁴Department of Surgery, University of Ottawa, Ottawa Hospital Research Institute, Ottawa, Canada

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Background: Postoperative venous thromboembolism (VTE) is a significant source of morbidity and mortality in patients with cancer undergoing major abdominopelvic surgery. Therefore, many guidelines recommend the use of extended duration postoperative low molecular weight heparin (LMWH) thromboprophylaxis, although the evidence for its overall safety and efficacy is limited.

Aims: In this systematic review and meta-analysis, we sought to assess the 30-day postoperative rates of VTE and bleeding complications following major abdominopelvic cancer surgery and to explore the potential risks and benefits of extended duration thromboprophylaxis with LMWH in such setting.

Methods: A systematic search of the literature was conducted on MEDLINE, EMBASE and CENTRAL. Observational studies and RCTs of adult patients that underwent abdominopelvic cancer surgery, had a follow-up of at least 30 days postoperatively and reported VTE or clinically-relevant bleeding outcomes were included. The DerSimonian and Laird random effect model was used to generate arcsined transformed pooled proportions for the outcomes and pooled relative risks for the extended duration thromboprophylaxis analyses.

Results: A total of 68 studies (1,631,118 patients) were included in the analysis. The 30-day postoperative rate of VTE was 1.7% (Figure 1. 95%CI: 1.5 to 1.9, $I^2=98\%$). The postoperative rate of clinically-relevant bleeding complications was 3.5% (95%CI: 1.6 to 6.1, $I^2=99\%$). Extended duration thromboprophylaxis was associated with a significant reduction in the incidence of VTE (Figure 2. 1.0% vs 2.0%; Risk ratio (RR) 0.48, 95%CI: 0.31 to 0.74; $I^2=0$), without a significant increase in clinically-relevant bleeding (4.0% vs. 4.9%; RR 1.0, 95%CI: 0.66 to 1.5, $I^2=0$).

*30 day clinical venous thromboembolism incidence. Results pooled between treatment groups where appropriate. * May contain asymptomatic VTE events.*

Comparison of 30 day clinical VTE incidence with versus without extended duration thromboprophylaxis. *May contain asymptomatic VTE events.

Conclusions: Extended LMWH thromboprophylaxis following major abdominopelvic cancer surgery was associated with a reduced incidence of clinical VTE, without an increase in clinically-relevant bleeding. However, the overall risk of symptomatic VTE within 30 days of surgery was relatively low, questioning the clinical relevance of routinely using extended duration thromboprophylaxis following major abdominopelvic cancer surgery.

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