Extended perioperative thromboprophylaxis in patients with cancer: a systematic review
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CRD summary
This review found that there was limited low-quality evidence that heparin perioperative thromboprophylaxis given for an extended duration for abdominal or pelvic cancer surgery reduced the risk of deep vein thrombosis compared with a shorter duration. The review methods were robust and these conclusions appear reliable, but more detail of patients and outcome rates would help their interpretation.

Authors' objectives
To evaluate the efficacy and safety of extended compared with limited duration heparin perioperative thromboprophylaxis in cancer patients.

Searching
MEDLINE and EMBASE were searched from inception to January 2007 alongside Web of Science and Cochrane Central Register of Controlled Trials (CENTRAL). Conference proceedings were handsearched. Reference lists of retrieved articles were searched. Search terms were available in an online appendix.

Study selection
Eligible studies were randomised controlled trials (RCTs) of heparin perioperative thromboprophylaxis that compared an extended duration (beyond the hospital stay) to a limited duration (only during hospitalisation) and reported one or more of the following outcomes: all-cause mortality; symptomatic deep vein thrombosis; pulmonary embolism; major or minor bleeding; injection site haematoma; and heparin-induced thrombocytopenia.

Included studies evaluated: tinzaparin stopped at discharge compared with continued for four weeks after discharge; enoxaparin 40mg daily for six to 10 days compared with for 25 to 31 days; and dalteparin 5,000U daily for one week compared to for four weeks. Patients were adults (aged over 18 or over 40 years) who underwent surgery for abdominal, urological or gynaecological cancer.

Studies were selected by two reviewers independently. Disagreements were resolved by discussion.

Assessment of study quality
Studies were assessed using the Grading of Recommendations Assessment Development and Evaluation (GRADE) method, which covered allocation concealment, intention-to-treat analysis, blinding and adequate follow-up (more than 80% of patients).

Validity was assessed by two reviewers independently. Disagreements were resolved by discussion.

Data extraction
Relative risks (RR) and 95% confidence intervals (CI) of the outcomes were extracted by two reviewers independently. Disagreements were resolved by discussion.

Methods of synthesis
Results were presented in a narrative synthesis.

Results of the review
Two RCTs (n=699) provided results for the review; a third RCT was included in the quality assessment but was reported only in abstract form and did not provide sufficient results. Both studies were classed as low quality.

One RCT found no statistically significant differences between extended and limited regimes at either three or 12 months for mortality or three or 12 weeks for bleeding outcomes (501 patients). One RCT reported a reduced risk of
asymptomatic deep vein thrombosis four weeks after surgery for extended prophylaxis (RR 0.21, 95% CI 0.05 to 0.94; 198 patients). No trials reported results for injection site haematoma. The smaller RCT reported that no heparin-induced thrombocytopenia occurred.

Authors’ conclusions
There was limited and low-quality evidence that extended heparin perioperative thromboprophylaxis reduced the risk of asymptomatic deep vein thrombosis in patients who underwent abdominal or pelvic surgery for cancer.

CRD commentary
This review had a clearly stated research question and specified the inclusion criteria for study design, interventions, participants and outcomes. The search appeared appropriate and the authors tried to locate other unpublished studies; it was unclear whether there were any language restrictions. Study quality was graded using relevant criteria for RCTs. All the review methods were performed by two reviewers in duplicate, which minimised risk of error or bias. The small number of studies found made narrative presentation of the results sensible. The conduct of this review appeared robust and the authors’ cautious conclusions are reliable, but further details of the individual studies regarding patients and actual numbers of events would help their interpretation.

Implications of the review for practice and research
Practice: The authors stated that extended thromboprophylaxis may be considered in high-risk patients with cancer who underwent major abdominal or pelvic surgery. The current practice of perioperative thromboprophylaxis needed to be improved.

Research: The authors stated that future trials should be adequately powered (a minimum of 708 patients) with improved patient follow-up and assessment of outcomes important to the patient (such as mortality and symptomatic venous thrombolytic events).

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.