

# Does extended use of low molecular weight heparin reduce VTE risk after abdominal surgery? Student EBM presentations

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# The question

**Scenario:**

Patient has had a gastric bypass operation, and has been put on prophylactic low molecular weight heparin after the operation. Should they continue to take the LMWH after being discharged?

**Clinical question:**

Does continued administration of LMWH after hospital discharge further reduce venous thromboembolism (VTE) risk after abdominal surgery?

<b>P</b>	Patients who have had abdominal surgery
<b>I</b>	Prolonged prophylaxis with low molecular weight heparin
<b>C</b>	No prolonged prophylaxis with low molecular weight heparin
<b>O</b>	Incidence of VTE

# The search and search results

We searched on PubMed for:

((duration) AND prolonged) AND heparin) AND abdominal surgery



8 results

We selected:

*'Prolonged thromboprophylaxis with Low Molecular Weight heparin for abdominal or pelvic surgery'* – Rasmussen et al. 2009

This search was performed due to a lack of papers looking at this question specifically for gastric bypass operations, with the paper finally selected covering abdominal surgery as a whole. Unlike many other papers, which concentrated more on the comparison of different thromboprophylactic treatments, the paper appeared particularly focussed on the potential benefit of extending thromboprophylaxis after an operation.



# The Study Appraisal

## Study Objective

‘To evaluate the efficacy and safety of prolonged thromboprophylaxis with LMWH for at least 1 month after abdominal or pelvic surgery compared with thromboprophylaxis administered during the in-hospital period only in preventing late VTE’

- This makes clear the intervention that the study is investigating, and what alternative its ‘efficacy and safety’ will be considered relative to
- It is less clear which group of patients the study considers. Is it possible to incorporate all ages and both genders of patient undergoing any abdominal or pelvic surgery and produce valid results?



# The Study Appraisal

## Search Method

- 4 databases searched, and the search strategy reported
- Bibliographies of matching RCTs checked
- Contacted primary authors of RCTs for clarification of data
- References from reviews checked
- Abstract books of the congresses arranged by The International Society on Thrombosis and Haemostasis and The Mediterranean League against Thrombosis consulted
- 3 published trials and unpublished data from 1 other trial was included



# The Study Appraisal

## Assessment of Included Studies

- Each study was assessed by the 3 authors
- Risk of bias reported for each of the included trials individually
- All were RCTs, 3 double blinded and one open-labelled with blinded assessment of the venogram that was the measure of outcome
- Neither the number of participants in each trial nor total number between the trials was stated

## Summarizing

- The **efficacy** of LMWH versus placebo or no treatment was reported in terms of post-surgery VTE, and separately DVT incidence
- Peto Odds ratios were given with confidence intervals
- The **safety** of the treatment was described in terms of incidence of major and minor bleeding, and mortality



# The Results (interpretation of findings)

## Efficacy

- Overall, the incidence of VTE after major abdominal or pelvic surgery:  
14.3% (95% CI 11.2% - 17.8%) in the control group  
6.1% (95% CI 4.0% - 8.7%) in the patients receiving out-of-hospital LMWH
- Peto Odds ratio 0.41 (95% CI 0.26 - 0.63),  $P < 0.0001$
- NNT to avoid 1 case of VTE was 13 (95% CI 9-24)

## Safety

- No significant difference regarding the incidence of overall bleeding between the control group and the LMWH group (Peto 1.11 (CI 0.62 - 1.97),  $P = 0.73$ )
- Nor a difference in mortality between the two groups: Peto Odds ratio 1.12 (95% CI 0.65 - 1.93),  $P = 0.68$
- There was no statistically significant heterogeneity between the observations made in any of the individual trials



# The Implications

This study suggests that prolonged thromboprophylaxis after abdominal surgery reduces the risk of subsequent VTE

Suggests that giving LMWH to a patient for 4 weeks after a gastric bypass operation (as opposed to until discharge) would reduce the chance of VTE, without jeopardizing patient safety.

