Thromboprophylaxis with low dose unfractionated heparin plus compression stockings reduces thromboembolic complications of colorectal surgery


**QUESTION:** In patients having colorectal surgery, what is the effectiveness of prophylactic methods using heparin and mechanical methods on reducing postoperative thromboembolism (TE)?

**Data sources**

Studies were identified by searching Medline, EMBASE/Excerpta Medica, and the Cochrane Library (1970 to May 2000). Meeting abstracts and reference lists of reviews were hand searched.

**Prophylactic methods for reducing deep venous thrombosis or pulmonary embolism or both at 7–14 days after colorectal surgery**

<table>
<thead>
<tr>
<th>Comparisons</th>
<th>Weighted event rates</th>
<th>RRR (95% CI)</th>
<th>NNT (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any heparin v no treatment or placebo</td>
<td>5.5% v 16.7%</td>
<td>60% (38 to 74)</td>
<td>9 (7 to 16)</td>
</tr>
<tr>
<td>LDH alone v LDH and compression stockings</td>
<td>21.1% v 5.1%</td>
<td>314% (22 to 1304)</td>
<td>7 (4 to 28)</td>
</tr>
</tbody>
</table>

LDH = low dose unfractionated heparin. Other abbreviations defined in glossary; RRR, RRI, NNT, NNH, and CI calculated from data in article.

**COMMENTS**

Colorectal surgery appears to be associated with a higher risk of thromboembolism than general surgery.1,2 This may be related to preoperative factors associated with a greater risk, such as cancer and inflammatory bowel disease; however, there are wide variations in thromboprophylactic regimens used.2

The findings of Wille-Jørgensen et al reinforce those of reviews in other fields; heparin reduces the odds of thromboembolism by at least half, and the addition of graduated compression hosiery is more effective than heparin alone. No difference exists between unfractionated and LMWH for thromboembolic events, but Wille-Jørgensen et al were unable to extract data on bleeding complications. Other reviews have found that LMWH results in greater reductions in the risk of minor bleeding complications than unfractionated heparin.3

2 Major methodological weaknesses of this review deserve mention. Firstly, because few trials enrolled colorectal patients alone, Wille-Jørgensen et al extracted data on colorectal subgroups from studies of general surgical patients to increase statistical power, potentially introducing selection bias. Secondly, 66 colorectal and general surgery studies were identified for inclusion, but data could be obtained from fewer than a third of these (ie, authors of original studies failed to respond to the reviewers’ requests for information). Despite these problems, the findings are consistent with those of other reviews and are biologically plausible; thus, current evidence justifies the use of both heparin and graduated compression hosiery for preventing thromboembolism in patients having colorectal surgery.

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