Review: elastic compression stockings prevent post-thrombotic syndrome in patients with deep venous thrombosis


Are non-pharmaceutical interventions effective and safe for preventing post-thrombotic syndrome (PTS) in patients with deep venous thrombosis (DVT)?

METHODS

Data sources: Cochrane Peripheral Vascular Diseases Specialised Trials Register (January 2003), which is based on searches of Medline and EMBASE/Excerpta Medica; Cochrane Central Register of Controlled Trials (2002); hand searches of Scripta Phlebologica (1993-2000), J Thromb Haemost (2003), conference proceedings, and citations of identified studies; and experts in the field.

Study selection and assessment: randomised controlled trials (RCTs) or clinical controlled trials that compared medical elastic stockings (pressure 20–30 mm Hg or 30–40 mm Hg at the ankle), compression bandages, or bed rest with control (no intervention or placebo stockings) in patients with objectively diagnosed DVT. Studies were assessed for validity and methods using a standard checklist.

Outcomes: occurrence of PTS over time. Secondary outcomes included complications and adverse effects (pulmonary embolism within 2 weeks of treatment, discomfort, pain, swelling, pressure sores, and recurrence of thrombosis).

MAIN RESULTS

4 RCTs (n = 466) met the selection criteria; 3 (n = 421) were included in the meta-analysis. At 2 years, patients who received elastic compression stockings had greater reductions in the incidence of any or severe PTS than those who received the control intervention (table). No information was available for complications or adverse effects in these studies. In 1 RCT (n = 45), patients who received a compression intervention had less pain and swelling than those who received bed rest without compression for the first 9 days after DVT (p<0.05). Complications or adverse effects were similar between the groups.

CONCLUSIONS

Elastic compression stockings prevent post-thrombotic syndrome in patients with deep venous thrombosis. Safety information was not available for the pooled studies; 1 study found similar adverse effects between groups.

**Commentary**

Estimates suggest that 1 in 3 patients with primary DVT will develop PTS, which produces leg pain, swelling, and occasionally, leg ulceration. Previous research has shown that patients with PTS perceive that the disease will have a negative impact on their quality of life. The review by Kolbach et al suggests that elastic compression stockings significantly reduce the risk of developing PTS. Earlier research indicates that although physicians understand the role of compression stockings for reducing the incidence of PTS, the impetus for ordering is the presence of symptoms, rather than prevention.

A potential weakness of the review by Kolbach et al is the unclear description of initial and ongoing anticoagulant therapy. Subtherapeutic anticoagulant therapy may be prognostic for the development of PTS, and therefore it would be reassuring to confirm that anticoagulant therapy was delivered similarly across trial arms to avoid confounding. Additionally, the absence of a validated, universally approved, PTS scoring system can distort the purported incidence. However, this is unlikely to bias the conclusions of the review. The use of oversized stockings in 1 of the studies included in the review (ie, Ginsberg et al) suggests that despite suboptimal compression, compression stockings remain beneficial.

Further research is needed on the use of compression stockings in the presence of arterial insufficiency. However, Kolbach et al provide a good argument for the use of compression stockings as safe and effective for prevention of PTS. Nurses should initiate their use before PTS symptoms occur.

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Elastic compression stockings v control (no intervention or placebo stockings) for deep venous thrombosis*

<table>
<thead>
<tr>
<th>Outcome at 2 years</th>
<th>Number of studies (n)</th>
<th>Weighted event rates</th>
<th>RRR (95% CI)</th>
<th>NNT (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any PTS</td>
<td>3 (421)</td>
<td>20%</td>
<td>43%</td>
<td>54% (38 to 66)</td>
</tr>
<tr>
<td>Severe PTS</td>
<td>3 (421)</td>
<td>7%</td>
<td>15%</td>
<td>56% (20 to 75)</td>
</tr>
</tbody>
</table>

*PTS = post-thrombotic syndrome; other abbreviations defined in glossary. RRR, NNT, and CI calculated from data in article.
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