TITLE: Compression Garments for the Treatment of Primary and Secondary Lymphedema: Clinical Effectiveness and Guidelines

DATE: 10 November 2011

RESEARCH QUESTIONS

1. What is the clinical effectiveness of compression garments for the treatment of primary lymphedema?

2. What is the clinical effectiveness of compression garments for the treatment of secondary lymphedema?

3. What are the evidence-based guidelines regarding the use of compression garments for the treatment of primary and secondary lymphedema?

KEY MESSAGE

There is evidence to support the usage of compression garments in both primary and secondary lymphedema; however, the evidence also suggests that further studies are warranted.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2010, Issue 10), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No methodological filters were applied to limit retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2006 and October 27, 2011. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

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RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

One health technology assessment, five systematic reviews, five randomized controlled trials, five non-randomized studies and two guidelines regarding the use of compression garments in the treatment of lymphedema were identified. Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

One health technology assessment\(^1\) examined the usage of compression garments in lymphedema and found there was no clear evidence that these garments were effective in the treatment of secondary lymphedema.

Three systematic reviews\(^2-4\) found compression garments to be useful in the treatment of secondary lymphedema related to breast cancer treatment. One systematic review\(^5\) discussed the implication of self-application and adherence which can negatively affect reduction of upper and lower limb lymphedema. A review\(^2\) by INESSS reported that patients should wear compression garments regularly after developing lymphedema. One review\(^5\) described a lack of evidence to support the use of compression garments in treating lymphedema (primary and secondary), and concluded that further studies are needed.

Five randomized controlled trials\(^7-11\) and six non-randomized studies\(^12-16\) were identified. The characteristics and findings of these studies are outlined in Table 1.

<table>
<thead>
<tr>
<th>Study</th>
<th>Objective</th>
<th>Results and Conclusions</th>
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<tbody>
<tr>
<td>King et al. 2011(^7)</td>
<td>To determine the effectiveness of using compression garments to treat breast cancer related lymphedema.</td>
<td>Compression bandaging helped to reduce lymphedema volume in lower extremities, but worsened lymphedema in upper extremities.</td>
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<td>Lamprou et al. 2011(^8)</td>
<td>Compared short-stretch bandages and a 2CC system to traditional multilayer bandaging in the treatment of lymphedema.</td>
<td>The new 2CC system was a good alternative to traditional bandaging for treating lymphedema.</td>
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<tr>
<td>Kasseroller and Brenner 2010(^9)</td>
<td>Tested the effectiveness of new, alginate drenched compression bandages in the treatment of breast cancer related lymphedema.</td>
<td>Alginate bandages were a useful alternative to conventional bandages in treating secondary lymphedema. Proper administration of alginate bandages provided</td>
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### Table 1: Characteristics and Findings of Randomized Controlled Trials

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<td>Damstra and Partsch 2009&lt;sup&gt;10&lt;/sup&gt;</td>
<td>Tested the pressure used when applying SSBs to treat lymphedema.</td>
<td>Compression bandages, such as SSBs with lower pressure, provided more reduction in lymphedema than higher pressure applications.</td>
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<tr>
<td>Sawan et al. 2009&lt;sup&gt;11&lt;/sup&gt;</td>
<td>Discussed the effectiveness of using prophylactic compression stockings to prevent leg lymphedema following vulval cancer.</td>
<td>Prophylactic use of compression stockings was an option for preventing leg lymphedema, but the authors suggested more studies be conducted.</td>
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### Characteristics and Findings of Non-Randomized Studies

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<td>Vignes et al. 2011&lt;sup&gt;12&lt;/sup&gt;</td>
<td>Examining effective treatments during the maintenance phase of lymphedema; these methods include using compression bandages.</td>
<td>The use of compression bandages and elastic sleeves was effective in the treatment phase. Non-compliance was a prevalent issue which was factored by patient age, higher weight, etc.</td>
</tr>
<tr>
<td>Damstra, Brewer and Partsch 2008&lt;sup&gt;13&lt;/sup&gt;</td>
<td>SSBs were applied on leg to measure pressure volume and lymphedema reduction.</td>
<td>SSBs for inelastic, multicomponent bandages showed an immediate reduction in leg volume in both lymphedema-affected and healthy patients.</td>
</tr>
<tr>
<td>Stout Gergich et al. 2008&lt;sup&gt;14&lt;/sup&gt;</td>
<td>Studied the effectiveness of early diagnosis of lymphedema in breast cancer patients (post-operatively) and applying compression bandages to reduce limb volume.</td>
<td>Using compression garments for the first 4 weeks post-operatively was effective for the treatment of secondary lymphedema. Continued usage was recommended only when there was visible swelling or other symptoms.</td>
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<tr>
<td>Vignes et al. 2007&lt;sup&gt;15&lt;/sup&gt;</td>
<td>Discussed the causes of lymphedema volume during treatment and studied the best options to reduce volume, including compression bandages.</td>
<td>Non-compliance was a factor in lymphedema volume during the treatment phase. The authors state that compression garments were a</td>
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Table 1: Characteristics and Findings of Randomized Controlled Trials

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<tr>
<td>Brambilla et al. 2006¹⁶</td>
<td>Studied the effectiveness of using below-knee elastic stockings versus no compression in secondary lymphedema.</td>
<td>Compressive therapy was a useful treatment for the management of secondary lymphedema. Both limb volume increase and decrease was reported.</td>
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²CC=Two Component Compression; SSBs=Short-Stretch Bandages

Two guidelines¹⁷-¹⁸ provide evidence regarding recommended practices for the use of compression garments in the treatment of lymphedema. One of these guidelines, available through the National Guideline Clearinghouse,¹⁶ recommends the use of compression garments but finds their usage a contraindication in treating lymphedema. The second guideline developed by CREST¹⁷ supports the use of compression garments or multilayer bandaging. The authors suggest that each patient is prescribed specialized bandaging over a lifetime. In combination with other modalities, compression garments provide effective treatment for lymphedema.
REFERENCES SUMMARIZED

Health Technology Assessments


Systematic Reviews and Meta-analyses


Randomized Controlled Trials


Non-Randomized Studies


Guidelines and Recommendations


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APPENDIX – FURTHER INFORMATION:

Review Articles


Additional References


30. 3M™ Coban™ 2 layer compression therapy [Internet]. London (ON): 3M; 2010 [cited 2011 Nov 03]. Available from: http://multimedia.3m.com/mws/mediawebserver?mwsId=66666UuZjcFSLXTtnXT2OXfaEVuQEcuZgVs6EVs6E666666--&fn=70-2009-7363-7.pdf