The treatment of lymphedema related to breast cancer: a systematic review and evidence summary

Kligman L, Wong R K, Johnston M, Laetsch N S

CRD summary
The review assessed physical and medical therapy interventions for women with lymphoedema after breast cancer treatment. Whilst some evidence was found to support the use of compression therapy, the authors’ conclusion that further studies are needed appears appropriate. However, relevant foreign language and unpublished studies might have been missed.

Authors’ objectives
To provide an evidence summary of the treatment options for women with lymphoedema following treatment for breast cancer.

Searching
MEDLINE, Cancerlit, HealthSTAR, CINAHL and PREMEDLINE were searched from May 2000 to March 2002; the search terms were reported. The Cochrane Library (Issue 1, 2002), reference lists of relevant papers and several websites were also checked. Only papers published in the English language were included. This updated the search undertaken during an earlier systematic review performed by the Steering Committee for Clinical Practice Guidelines for the Care and Treatment of Breast Cancer (see Other Publications of Related Interest).

Study selection
Study designs of evaluations included in the review
Only randomised controlled trials (RCTs) were eligible for inclusion in the review.

Specific interventions included in the review
Studies that assessed treatments for lymphoedema related to treatment for breast cancer were eligible for inclusion. The specific interventions assessed included: therapy; elastic sleeve or compression garment plus exercise and self-massage; manual lymph drainage plus self-massage and standard care; pneumatic compression pump with or without compression sleeve; electrically stimulated lymphatic drainage plus elastic sleeve; and medical therapy compared with placebo, exercise and self-massage, manual lymphatic drainage, elastic sleeve, standard therapy or no treatment.

Participants included in the review
Studies with participants that had received treatment for breast cancer were eligible for the review. The majority of studies included patients with established arm lymphoedema, although the definitions of lymphoedema varied. The duration of lymphoedema prior to the start of the studies varied from 6.5 to 14.5 months for studies of physical therapy, and from 3.2 to 8 years for studies of medical therapy.

Outcomes assessed in the review
Studies that measured the effect of therapy for lymphoedema on arm volume, symptom control, quality of life or cosmetic results were eligible for inclusion.

How were decisions on the relevance of primary studies made?
Two reviewers selected studies for inclusion.

Assessment of study quality
The authors did not state that they assessed validity.
**Data extraction**
The authors stated that two members of the Practice Guidelines Group reviewed the evidence. However, they did not explicitly state how the data were extracted for the review, or how many reviewers performed the data extraction. The methods of outcome assessment, definition and duration of lymphoedema, and response rates were extracted.

**Methods of synthesis**

How were the studies combined?
The studies were combined in a narrative.

How were differences between studies investigated?
The studies were grouped according to whether they assessed physical or medical therapies. The results were then discussed in terms of study designs, comparators and breast cancer treatment.

**Results of the review**

Ten RCTs (n=618) were included in the review.

Physical therapy (6 RCTs).

One study used physical therapy as a preventive measure between surgery and the commencement of radiotherapy, though no significant effect of treatment was identified. The one RCT evaluating the use of an elastic sleeve to self-massage found a significant benefit; the response rate were 86% and 36%, respectively, with and without the elastic sleeve (P=0.042). No other significant effects of physical therapy interventions on response rate, reduction in arm volume and improvement of symptoms were identified.

Medical therapy (4 RCTs).

All 4 studies were placebo-controlled crossover trials without washout periods. Two RCTs assessing the effectiveness of coumarin came to opposite conclusions in terms of mean reduction in arm volume from baseline. One RCT found no statistically significant improvements with Daflon compared with placebo. The authors stated that the remaining RCT showed that, compared with placebo, O-beta-rutosides had a promising effect on mean reduction in arm volume from baseline and improvement of symptoms (P<0.01 and P<0.05, respectively). No serious adverse events were identified, although in one RCT, women treated with coumarin for 6 months had evidence of hepatotoxicity compared with placebo treatment (P<0.006).

**Authors' conclusions**

Although there is some evidence to suggest that compression therapy and manual lymphatic drainage may improve established lymphoedema, the evidence is insufficient and further studies are needed. There is no current evidence to support the use of medical therapies.

**CRD commentary**
The review question was clear in terms of the interventions, participants, outcomes and study design. Several relevant sources were searched, although the inclusion of only studies published in English may increase the likelihood of language bias. There was no clear attempt to locate unpublished studies, thus raising the possibility of publication bias. However, the reviewers did attempt to assess the relevance and completeness of the literature search by surveying relevant clinicians. Efforts to reduce reviewer bias and error appear to have been employed at the study selection stage, but it was unclear whether similar methods were applied in the data extraction. Despite only RCTs being included, the quality of them was not assessed. The narrative synthesis was appropriate given the diverse nature of the interventions and outcomes. Since the quality of the included studies was not assessed and the search was limited to publications in English, the strength and completeness of the evidence is unclear. The authors' conclusion regarding manual lymphatic drainage is not supported.
Implications of the review for practice and research

Practice: The authors stated that there is insufficient evidence to support a recommendation for the treatment of lymphoedema.

Research: The authors stated that the role of manual lymphatic drainage and O-beta-rutosides in the treatment of lymphoedema requires further study, using relevant clinical outcomes for the lymphoedema patient.

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Other publications of related interest


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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.