

Appraisal

Critically appraised paper: For women at risk of breast cancer-related lymphoedema, prophylactic compression sleeve usage reduces and delays arm swelling

Synopsis

Summary of: Paramanandam VS, Dylke E, Clark GM, Daptardar AA, Kulkarni AM, Nair NS, et al. Prophylactic Use of Compression Sleeves Reduces the Incidence of Arm Swelling in Women at High Risk of Breast Cancer-Related Lymphedema: A Randomized Controlled Trial. *J Clin Oncol.* 2022; Feb 2;JCO2102567. <https://doi.org/10.1200/JCO.21.02567>. Epub ahead of print. PMID: 35108031.

Question: Does prophylactic use of compression sleeves in combination with usual care reduce or delay swelling in women at risk of breast cancer-related lymphoedema in the first year after surgery compared with usual care? **Design:** Randomised controlled trial with concealed allocation and blinded outcome assessments. **Setting:** Single centre in India. **Participants:** Women (aged ≥ 18 years) requiring unilateral breast cancer surgery and who could complete questionnaires independently in English, Hindi, Marathi or Bengali were included. Exclusion criteria included preoperative arm swelling and conditions that restricted wearing a compression sleeve. Randomisation of 307 participants allocated 155 to the intervention group and 152 to the usual care group. **Interventions:** Both groups received usual care, including one education session about arm, skin and drain care and daily shoulder exercises. Women were taught how to identify signs of lymphoedema, and further physiotherapy assessment and management were undertaken if noted. In addition, the intervention group was provided with two compression sleeves to wear from the first postoperative day until 3 months after adjuvant treatments,

to be worn for a minimum of 8 hours/day during waking hours. **Outcome measures:** The primary outcome was the incidence of arm swelling, measured using the interarm impedance ratio by bioimpedance spectroscopy. The secondary outcome measure was physical circumference measurement of arm swelling. Patient-reported outcomes included four scales of the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire and the breast cancer-specific questionnaire. **Results:** A total of 301 participants completed the study. At 1 year after surgery, incidence of arm swelling was lower in the treatment group (58/152) compared with the control group (80/149), hazard ratio (HR) 0.61 (95% CI 0.43 to 0.85 units) and delayed, measured with bioimpedance spectroscopy. Arm swelling using physical measurements was also lower and delayed for the intervention group. There were no between-group differences for quality of life measures. **Conclusion:** The preventative use of compression sleeves for women at high risk of breast cancer-related lymphoedema reduces and delays swelling at 1 year after surgery.

Provenance: Invited. Not peer reviewed.

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Commentary

Breast cancer-related lymphoedema is a progressive condition that can result in chronic morbidity and tissue composition changes.¹ To potentially reverse this condition or reduce progression, regular screening through prospective surveillance is recommended for early detection and intervention.²

This important paper focuses a step earlier to evaluate whether lymphoedema can be prevented in women at high risk due to axillary lymph node dissection. Participants were randomised to either usual care or usual care plus daily compression sleeve use until 3 months after completion of adjuvant treatment. Compression during this period was supported by findings that some adjuvant treatments increase the risk of lymphoedema.³

The key finding of this randomised trial was that prophylactic compression reduces the incidence and delays the occurrence of lymphoedema in the first year after surgery. It is planned to follow-up this cohort for 5 years, given that the incidence continues to rise until 5 years after surgery.⁴

When considering the clinical application of this study, it is important to note, as the authors did, that all participants were educated to identify signs and symptoms of lymphoedema and to seek review as required. Prophylactic compression was therefore not 'set and forget'. Women at risk of lymphoedema have previously been shown to reliably identify changes requiring review.⁵

Usual care in this study was group education, which may not be reflective of all health services, as more adopt prospective surveillance. The authors noted that lymphoedema may develop between screening appointments and a recent systematic review of prospective surveillance² reported that high-risk women were still developing lymphoedema. Adding prophylactic compression may prove key to improving outcomes.

Provenance: Invited. Not peer reviewed.

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