

## The short-term effects of low-level laser therapy in the management of breast-cancer-related lymphedema

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### Abstract

**Background** Breast-cancer-related lymphedema (BCRL) is a chronic disease, and currently there is no definitive treatment for it. There are some therapeutic interventions targeted to decrease the limb swelling and the associated problems. Low-level laser therapy (LLLT) has been used in the treatment of post-mastectomy lymphedema since 2007 in the US. The aim of this study is to review our short-term experience with LLLT in the treatment of BCRL.

**Method** Seventeen BCRL patients referred to our lymphedema program between 2007 and 2009 were enrolled in this study. All patients had experienced at least one conventional treatment modality such as complex physical therapy, manual lymphatic drainage, and/or pneumatic pump therapy. LLLT was added to patients' ongoing therapeutic regimen. All patients completed the full course of LLLT consisting of two cycles. The difference between sums of the circumferences of both affected and unaffected arms ( $\Delta C$ ), pain score, scar mobility, and range of motion were measured before and after first and second cycles of LLLT sequentially.

**Results** All patients were female with a median age of 51.8 (44–64) years.  $\Delta C$  decreased 54% (15–85%) and 73% (33–

100%), after the first and second cycles of LLLT, respectively. Fourteen out of seventeen experienced decreased pain with motion by an average of 40% (0–85%) and 62.7% (0–100%) after the first and second cycle of LLLT, respectively. Three patients had no improvement in pain after LLLT. Scar mobility increased in 13 (76.4%) and shoulder range of motion improved in 14 (82.3%) patients after LLLT. One patient developed cellulitis during LLLT. **Conclusion** Patients with BCRL received additional benefits from LLLT when used in conjunction with standard lymphedema treatment. These benefits include reduction in limb circumference, pain, increase in range of motion and scar mobility. Additionally, two cycles of LLLT were found to be superior to one in this study.

**Keywords** Low-level laser therapy · Breast cancer · Lymphedema

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