Low-Level Laser as a Treatment Option for Postmastectomy Lymphedema

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Arm lymphedema (LO) is a significant side effect of breast cancer surgery and/or adjunctive radiotherapy, occurring in 5% to 30% of cases.[1,2] LO is a chronic and progressive condition in which the limb becomes increasingly swollen and deformed due to inadequate lymphatic drainage and then becomes fibrotic, especially if left untreated. It results in considerable discomfort, with symptoms of limb heaviness, weakness, pain, restricted shoulder mobility, burning pains and elevated skin temperature, obvious deformity, social isolation, and psychological morbidity. Common treatments for this condition vary from place to place but typically include compression bandaging and/or garments, and manual or assisted lymphatic drainage.[3] However, these treatments palliate rather than resolve the problem and are expensive, time consuming, and labor intensive.[4]

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Over the last several years, our group has investigated the use of near infrared low-level laser therapy (LLLT) for the treatment of LO. LLLT is applied at levels that do not induce local tissue heating, equivalent in power to domestically used lasers. There were anecdotal reports that LLLT was effective in the treatment of wounds, fibrous scar tissue, and ligaments; there is some evidence for this in animal models.[5-7] LLLT was also suggested to encourage lymphangiogenesis and stimulate lymphatic motoricity,[8,9] and to stimulate macrophage cells[10] and the immune system.[11] Finally, there is evidence that LLLT is effective in treating painful inflammation in chronic joint conditions.[12] These reports suggested that LLLT could be an appropriate treatment for chronic postmastectomy lymphedema. Here we summarize the results of our use of LLL in the treatment of postmastectomy LO; we have not found any other published reports of this treatment as an option in LO.