

Editorial

Common conservative treatments for lymphoedema post breast cancer: A focus article

Shane Gallagher^{a,b,c,*}, Lynn O' Connor^c, David Roberts^{a,b} and Kenneth Monaghan^{a,b}

^a*Clinical Health and Nutrition Centre, School of Science, Institute of Technology Sligo, Sligo, Ireland*

^b*Neuroplasticity Research Group, Clinical Health and Nutrition Centre, School of Science, Institute of Technology Sligo, Sligo, Ireland*

^c*Physiotherapy Department, Sligo University Hospital, Sligo, Ireland*

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Abstract. Breast cancer is the most common type of cancer in women worldwide (J. Ferley et al., 2015). Breast cancer-related lymphoedema (BCRL) is a disabling complication with a long term impact on quality on life after breast cancer treatment, with an incidence of 2–5% in patients post sentinel node procedures (M. King et al., 2012) up to 40% following axillary lymph node dissection (A.C. Pereira et al., 2017). BCRL results in swelling of the arm, hand, and trunk which can lead to limb pain, heaviness, and altered sensation (Y.J. Sim et al., 2010). These symptoms can result in functional limitations, psychosocial distress and an overall reduction in quality of life (S.J. Merchant et al., 2015). The aim of this review is to evaluate the effects of some of the more common conservative rehabilitation interventions in BCRL. Conservative interventions reviewed include early physiotherapy and exercise, complex decongestive therapy, manual lymphatic drainage, compression, electrotherapy & acupuncture, self-treatment & weight management. The review may inform policies for treatment within the health service.

Keywords: Lymphoedema, breast cancer, conservative treatment

1. Breast cancer related lymphoedema

Breast cancer related lymphoedema (BCRL) is one of the most commonly reported complications of treatment for the estimated 2 million breast cancer cases worldwide annually [6–8] with an incidence of 17% [9].

BCRL occurs due to partial or total destruction of the lymphatic system. Risk factors include post-surgery radiotherapy, infection/cellulitis [9] and a high body-mass index > 25 [10]. Conservative sentinel lymph node procedures reduce the risk of BCRL to 2–5% [2, 11, 12] compared to more invasive procedures [13].

BCRL results in swelling of the arm, hand, and trunk which can lead to limb pain, heaviness, and altered sensation [4] resulting in functional limitations and psychological distress [5]. It increases the risk of cellulitis and hospitalisation [14]. It is therefore important to have safe, effective and evidence based treatment options [15].

2. Common treatment strategies

With diagnosis of BCRL based on either a 10% greater affected limb volume/2cm greater circumferential measurements [10, 14, 16, 17], a range of conservative treatments are commonly prescribed by health professionals to treat BCRL. The aim of the BCRL treatment is to alleviate symptoms, prevent progression and reduce risk of skin infection [18].

*Corresponding author: Mr. Shane Gallagher, Clinical Health and Nutrition Centre (CHANCE), Neuroplasticity Research Group, School of Science, Institute of Technology (IT) Sligo, Ireland. Tel.: +353 719155222; E-mail: shane.gallagher1@hse.ie.

3. Early physiotherapy and exercise

Patients should complete physiotherapy programmes+/resistance training as it reduces the rates of incidence [19, 20] and exacerbation [20] of lymphoedema and also reduces volume [21–23], while also resulting in increased Quality of life [21, 22].

4. Complex decongestive therapy

Complex decongestive therapy (CDT) consists of manual lymphatic drainage, bandaging, compression, skin care, remedial exercises and patient education [24]. It is considered the standard treatment technique to control and even reduce the lymphoedema volume and symptoms, preserve skin integrity and improve limb function [25]. Phase 1 is intensive treatment to reduce swelling; Phase 2 (maintenance phase) maintains the reduced swelling, with compression usually in the form of hosiery (compression sleeve) [10, 24–27].

A systematic review found strong evidence that CDT is an effective way to treat various degrees of lymphoedema from mild to severe; early or late onset; recent or chronic; in patients with active cancer; and in palliative care situations, also improving overall quality of life (QOL) [28].

A Cochrane review [25] found that MLD is safe and may offer additional benefit to compression bandaging for swelling reduction.

Compression sleeves should be worn by patients to prevent sub-clinical lymphoedema (determined using bio-impedance spectroscopy) developing into chronic lymphoedema [29, 30]. Patients who adhere to wearing the compression sleeve in the maintenance phase have the lowest risk for regaining oedema volume [27]. Compression bandaging resulted in greater median volume reductions than compression garments in the intensive phase of treatment [2, 31]. A recent review [32] described how bandaging pressures in the range of 20–30 mm Hg seem to be effective in the treatment of arm lymphoedema.

Adjustable compression systems (ACS) were found to be effective for the reduction of excess lymphoedema volume [33, 34] and can be used in the intensive and maintenance phase of treatment [32]. Patients reported that the device was more practical and more comfortable compared to compression bandaging [34]. Unlike standard compression which loses pressure over time, patients can adjust the ACS to maintain optimal pressure [32].

Pneumatic compression lacks the ability to be a standalone therapy [27, 35] as it only stimulates the lymphatic drainage in working/intact lymphatic collectors. When combined with CDT it reduced oedema, and pain [35].

5. Acupuncture & electrotherapy

A systematic review and meta-analysis [36] found low level evidence that acupuncture alleviated upper limb swelling and pain post BCRL.

Low-level laser therapy was found to be effective for the management of BCRL in terms of volume reduction [37–39]. Extracorporeal shockwave therapy (ESWT) was also found to be effective for lymphoedema volume reduction both post treatment [40, 41] and at 6 month follow-up [41].

6. Self-treatment including weight loss

Life-long self-management is necessary to control lymphoedema and is essential for achieving and maintaining successful treatment, as the damage to the lymphatic system is permanent [10, 42]. This includes compression arm sleeves worn daily, practicing good skin care, self-lymphatic massage and exercise, avoiding injury/trauma to the affected area; elevating the affected area to reduce swelling; monitoring the affected area for changes in size, colour, and/or temperature [10, 14, 43]. Establishing routines, taking ownership of [44], and greater knowledge of lymphoedema [43] help improve control of lymphoedema and adherence to self-management.

Patients with “at-risk” arms post breast cancer treatment should be advised to avoid weight gain and to avoid infection as these are the only two proven risk factors for BCRL in this patient group [45]. There is a significant correlation between weight loss and reduction in excess arm volume in women with BCRL [46], and may have additional health benefits [47].

7. Kinesiotape

A systematic review [48] found kinesiotape effective for improving range of motion, strength, and QOL, as well as reducing pain, disability and oedema, improved treatment retention effect at 3 months [49] and is more cost-effective [50] although volume reduction is not as effective as MLD and compression

[48, 51, 52]. However, it can be used in alternation to, or provide an alternative treatment strategy for women who have contra-indications to, or are non-compliant with traditional lymphoedema treatment, [15, 48, 53] or in hot and humid conditions when bandages may be uncomfortable [54]. It should still be used with great caution as it results in skin complications in 10–21% of patients [15].

8. Conclusion

All BCRL patients should receive MLD in addition to compression bandaging. Adjustable compression wraps provide an interesting alternative to multilayer bandaging and may allow for increased self-management in BCRL.

Progressive resistance training intervention should be included in each patient's initial treatment, education and self-management programme as it almost halves the odds of BCRL incidence/exacerbation. Acupuncture, LLLT, and ESWT all show promising results in the treatment of BCRL and give alternative treatment options. Kinesiotaping is another option for use in clinical practice, yet should be used with caution. Self-treatment remains a key treatment strategy and patients should be advised to avoid weight gain and infection. With the advent of Covid-19, and restrictions in outpatient appointments, self-management and treatment adjuncts that allow self-treatment become even more important.

It would be hoped that going forward, patients are exposed to the best possible treatment from the earliest possible stage. This would include patients being screened for sub-clinical lymphoedema, who can then receive compression-garments [30]. Patients receiving early physiotherapy and progressive resistance exercise also have seen a reduction in the incidence of lymphoedema [19, 21]. With accurate early diagnosis and effective therapy now available this should be able to shift the focus of lymphoedema treatment to a more proactive rather than reactive approach [10].

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