

HOLISTIC MANAGEMENT OF LYMPHOEDEMA IN JAPAN: TWO CONTRASTING CASES

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One of the roles of a nurse is to keep patients with secondary lymphoedema from breast cancer treatment motivated to self-care, as its symptoms are chronic and debilitating. Patients need an easy, quick, cheap, and effective self-care programme because they often cannot and do not adhere to complex, time-consuming, and expensive treatments. The author's clinic in Japan is running a trial of a holistic self-care programme that has been well adhered to by patients so far.

This 10-minute programme consists of radio exercise broadcasts, Tai Chi arm exercise, skin care with grapefruit massage oil using lymphatic drainage technique, and basic self-care education. The two cases reported in this article show contrasting, but positive, outcomes after participating in this programme.

There is an increasing body of evidence (Ridner 2004; Johansson, et al, 2005; National Lymphedema Network, 2011) suggesting that exercise can reduce the symptoms of lymphoedema. The level and intensity of exercise varies from gentle home-based exercise – including stretching, range of motion exercises, breathing techniques (Gautam et al, 2011) – to higher level activity, such as dragon boats and gym work, all of which can reduce limb volume and improve quality of life (QOL) for patients with

breast cancer-related lymphoedema (BCRL).

This group of patients often pay higher treatment costs than those without BCRL (Park et al, 2008), further adding to their emotional and financial stress. Although it is ideal if patients can prevent worsening of their lymphoedema with self-care, only approximately half of them succeed in doing so (Ridner, 2006). Many of these patients indicate that recommended methods of self-care are too complicated and time consuming.

Nurses hesitate to teach patients how to self-care for lymphoedema because they are not confident to do so, despite it being an important role of the nurse. As BCRL has a chronic and debilitating pathophysiology, simpler, easier, cheaper, and effective methods of self-care are needed.

A clinical trial of such a self-care programme is now proceeding (umin000007616), two cases from which that might inform future studies are reported in this article. These cases suggest that focusing on a single outcome measure may not be the best indicator among those with BCRL.

This report shows that adherence to a simple self-care programme was beneficial in both cases, but for one volume of the affected limb was reduced, while in the other it increased. What this might mean for BCRL patients broadly is also discussed.

Methods

The cases that are presented here are part of a larger study (key information and medical histories of the two cases are outlined in *Table 1*). Both cases had grade 1–2 oedema of the limb defined by the National Cancer Institute's Common Terminology Criteria for Adverse Events version 4.0 (NCI, 2009), and were referred from a breast cancer specialist in May 2012. Except for age, the two patients were well matched in key parameters.

These patients were free of cancer recurrence, had no active treatment in the 6 months prior to enrolment. They had no signs of skin damage or acute inflammation on the affected arm, and were not allergic to the aromatherapy oil used or its carrier. Neither were pregnant, nor were they attempting to conceive.

Measurements

Hand volume was measured using water displacement. The arm volume was determined based on calculations from the circumference of the limb using anatomic landmarks (Tailor et al, 2006). The circumferences were taken for mid-ulnar styloid, mid-forearm, olecranon, mid-upper arm and 65% point of upper arm and then calculated using a truncated cone formulae.

The extent of fibrotic induration in the major lymphatic territories was measured using tonometry (Clodius et al, 1976; Piller and Clodius, 1976; Bates et al, 1994; Moseley and Piller, 2008). The tonometer was placed on the forearm, upper arm (10 cm above

and below the elbow fossa) and chest (crossing point of mid-clavicular line and axillary line).

Limb volume and tonometry measurements were made at baseline (T0), and at one (T1) and three months (T2).

A questionnaire seeking details on medical and treatment history, incidence of acute inflammation, skin condition and symptoms of the affected arm compared with the contralateral arm, and its effect on ADL, social activity and psychological dimension, self-care adherence, and its burden for this self-care programme was also administered at each time point.

Holistic self-care programme

The simple, easy and cheap self-care programme that is the focus of the clinical trial from which these cases are taken consists of five basic parts:

- ▶ A basic education programme for preventing aggravation and development of lymphoedema – the education programme included the monitoring of lymphoedema, skin care, injury prevention, maintaining healthy weight, and an understanding of the importance of exercise and compression.
- ▶ Modified radio-broadcast exercises (Radio Taiso Daiichi as it is called in Japan) based around a radio programme (Kanpo Seimei; once per day, any time). The exercises take 3 minutes.
- ▶ Tai Chi breathing and arm exercise (Moseley et al, 2005) repeated five times once per day, before a shower or bath.
- ▶ Lymph node clearance of upper body (30 seconds, once a day, in the shower or bath); while the patient washes their body (consisting of a gentle effleurage stroking of the neck and shoulder directed to subclavicular lymph node using their fingers).
- ▶ Skin care using lymph drainage technique with aromatherapy oil

Table 1

Medical history of two cases

| | Case 1 | Case 2 |
|----------------------------------|----------------------------|----------------------------|
| Age (years) | 20s* | 70s* |
| BMI (kg/m ²) | 22.1 | 19.7 |
| Affected arm | Right | Right |
| Dominant arm | Right | Right |
| Operation (time since operation) | Bp+Ax (20 months) | Bp+Ax (14 months) |
| Duration of lymphoedema (months) | 14 | 12 |
| Adjuvant therapy | Chemotherapy, radiotherapy | Chemotherapy, radiotherapy |

*Exact age is not presented as that could lead to identification of the individuals; BMI = body mass index.

on the affected arm (once per day, after bathing). Patients were taught to firstly stroke the upper arm toward the shoulder from the elbow, then the forearm, then the hand. The aromatherapy oil used was sweet almond oil with 0.5% grapefruit oil (Haruta, 2006).

This holistic care programme is simple, cheap (the oil costs about 20 cents per treatment), quick (about 10 minutes in total), and easy to perform. For these reasons, the author saw a high compliance rate in the study to date. Both cases mentioned in this article showed high compliance.

Results

Relative volume change (RVC) in the hand, forearm, upper arm, and upper limb are shown in *Figures 1, 2, and 3*. The change of tonometry (smaller numbers indicate harder tissues) of the forearm, upper arm, and chest are shown on *Figure 4 and 5*.

Case 1

This patient's lymphoedema possibly started due to her carrying heavy objects or using Stone Sauna (popular style of spa in Japan – people lie down on heated natural stone and it gradually heats their body up). She had been having trouble with writing due to an oedematous thumb. She had been practicing yoga and stretching exercises for 1 year.

One month into the programme, the patient began writing and this increased steadily over the 3-month participation period as she had started the job training programme.

The RVC of the hand reduced by 24% at T1, but increased at T2, probably due to the intense writing. However, RVC remained reduced by 19% from baseline. The RVC of the forearm remained reduced compared

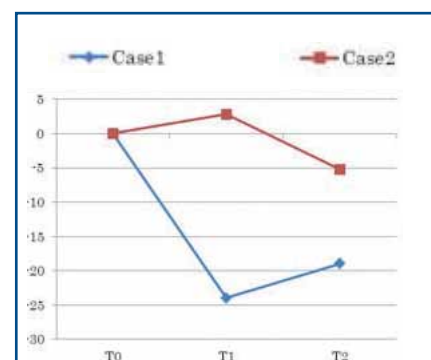


Figure 1. Relative volume change of the hand.

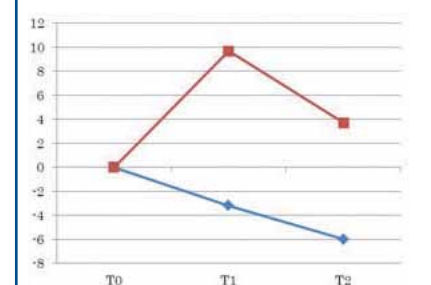


Figure 2. Relative volume change of the forearm.

with baseline at T1 (3.2%) and T2 (6.0%). The RVC of the upper arm increased by T1 (5.7%), but decreased by T2 (2.2%).

It seems the fluid of her lower arm was cleared quickly so RVC of the upper arm increased, but it cleared from that area by T2. The RVC of the whole arm decreased to -6.2% 3 months later.

At the beginning of the study, the patient had dry and rough skin, but by the end, her skin had become more subtle, thus reducing the risk of infection. The skin and epifascial tissues of the upper arm became softer (indicated by tonometry), while the forearm became harder. This may be attributable to increased muscle tone and perhaps

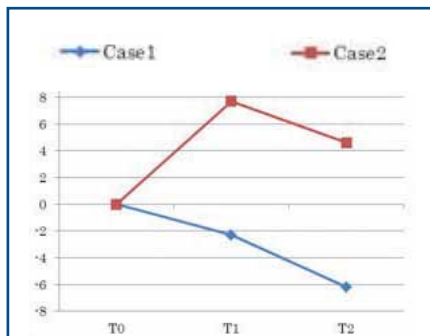


Figure 3. Relative volume change of the upper limb.

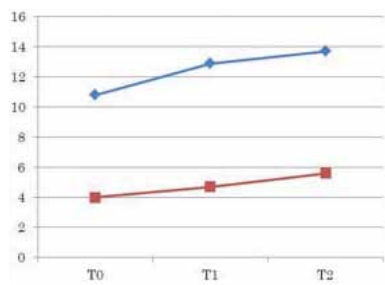


Figure 4. Tonometry of the forearm.

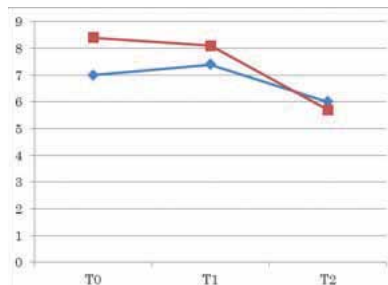


Figure 5. Tonometry of upper arm.

development in the forearm due to intensive writing activity.

Case 2

This patient had not undertaken much (or any significant) previous exercise so her muscular development was poor. When she undertook the prescribed exercise programme of this trial, her unused affected arm increased in volume, but, in this case, it was not due to worsening oedema overall, but to an increase in muscle mass.

The patient found the 10-minute programme easy to perform when she started and felt the oedema was better after a week. After a month, she felt swelling on her oedematous limb and RVC increased.

The patient was rubbing her skin too hard as part of the essential oil skin care regimen and was retrained in this aspect of the programme, and she seemed to understand. Her RVC and tonometry decreased after 3 months.

Discussion

In case 1, the limb volumes were down and stayed down. The patient already had good muscle tone since she undertook exercise in the form of yoga and stretching. Tonometry in the upper portion of the limb showed a softening due to the possible removal of indurated tissue. Tonometry of the lower portion of the limb showed hardening of the tissues due to possible increased muscle tone in the forearm.

In case 2, the limb volumes increased initially in the hand and arm due to additional exercise (increased muscle mass) and the accumulation of some fluids due to incorrect massage technique. While muscle mass remained after 3 months, the fluid again started to reduce.

Lymphoedema in both cases improved. As this programme is quick and easy to adopt, we expect

their self-care adherence will continue to the end of the study. As this study will follow these and other patients for 6 months, the author will know the safety and feasibility of this programme in the long term. This holistic self-care programme for BCRL patients can be taught by general nurses.

Conclusion

This simple exercise, breathing, and skin care programme provided some improvements in the two Japanese women with mild BCRL, according to their subjective indications. However, in one case, the arm became larger, while in the other it became smaller. Both, however, are good outcomes, since one patient rarely exercised and seemed to have put on additional muscle bulk (especially in the upper arm), while in the second case, excess fluid reduced.

More care when assessing outcomes of treatment or management of BCRL must be taken, since focusing only on arm size may give a false sense of treatment failure. The author recommends specifically measuring fluids, as well as overall limb volume, and ideally tonometry or indurometry, to ensure an accurate statement is made about patient progress from a more holistic perspective. JL

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