

Physiotherapy Briefings for Physicians

August 2010

This issue focuses on upper extremity lymphedema in women who undergo breast cancer surgery. “The management of patients with breast cancer-related lymphedema is challenging and requires a coordinated effort by members of the health care profession,” says Dr. Don McKenzie, Professor & Director of the Division of Sports Medicine in the Faculty of Medicine at UBC.

“Physiotherapists play an important role in patient education and can assist with the restoration of shoulder range of motion, upper extremity strength and muscle bulk. They can provide specific advice regarding exercise and local skin care and methods that help restore normal lymphatic function to the affected limb.”

Although there is an identified need for well-designed, controlled studies to identify the optimal combinations of conservative treatment for lymphedema [1,2], numerous recent studies have added to the body of evidence in several fundamental areas of knowledge.

Timing of assessment and interventions

A randomized controlled trial of women who had undergone axillary lymph node dissection studied the effect on time to onset of secondary lymphedema when physiotherapy treatments were started about one week post-operatively [3]. The test group (n = 59) underwent a three-week program of manual lymph drainage, massage, stretching, and shoulder exercises, performed three times per week. Both the test group and control group (n = 57) received instruction about secondary lymphedema. At one year follow-up, there was a significant difference (p = 0.01) between the test group and control group for development of secondary lymphedema (7% vs. 25%), suggesting that early intervention may be effective in delaying or preventing the onset of secondary lymphedema in the first year following breast cancer surgery with dissection of axillary lymph nodes.

In another study [4], researchers investigated the effect on onset of lymphedema from two different exercise programs. The exercise group (n = 58) was restricted to arm movement below shoulder level for the first 7 days post-operatively. The control group began an exercise program that included above-shoulder-level exercises within 48 hours after surgery. At one year follow-up, there was a significant difference (p = 0.031) between the control group (16 cases of secondary lymphedema), and the exercise group (6 cases). The study suggests that exercise programs with full shoulder mobilisation should be delayed a week after axillary node dissection for invasive breast cancer.

Exercise and secondary lymphedema

A number of recent studies have addressed the issue of whether the benefits of exercise outweigh potential risks for developing or exacerbating lymphedema. A review [5] assessed four studies in which participants were assigned to supervised progressive weight lifting or no-exercise groups. The reviewer concluded that “contrary to clinical guidelines that have guided women to avoid use of the arm treated for breast cancer, the studies indicate that upper body exercise is safe for survivors with and at risk for lymphedema”. Further, in one study [6], the trial group (n = 71) had greater improvement in self-reported severity of symptoms (p = 0.03), upper and lower body strength (p < 0.001 for both) and lower incidence of lymphedema exacerbations when assessed by a lymphedema specialist (p = 0.04) at one

Lymphedema



Fast Facts

Risk factors for lymphedema after breast cancer surgery include:

- Overweight/obesity [10,11]
- Removal of a greater number of lymph nodes [10]
- Receiving chemotherapy [10]
- Axillary node dissection has a greater risk of lymphedema than sentinel lymph node biopsy [11]

The components of Complex Decongestive Therapy (CDT), also known as Combined Physical Therapy (CPT) or Complex Decongestive Physiotherapy (CDP) are [2]:

- First phase: manual lymph drainage (MLD) or intermittent pneumatic compression, multi-layer bandaging, skin care, exercise
- Second phase: MLD, compression garments, skin care, exercise

CDT is also commonly used in the management of primary lymphedema/truncular lymphedema and lymphatic vascular disease [14,15].

Find a Physiotherapist
www.physiotherapy.ca



Canadian
Physiotherapy
Association

Association
canadienne de
physiothérapie

continued on back page

Numerous recent studies have focussed on the incidence and time course of lymphedema following breast cancer surgery:

- A study (n = 61) reported that the cumulative 5-year incidence of lymphedema in the study population was 42%. Of these, 80% reported lymphedema onset within 2 years and 89% within 3 years [8].
- An Australian study (n = 287) reported that 33% developed lymphedema between 6 and 18 months after surgery [9].
- A study (n = 622, under age 45) reported that 54% of participants reported swelling within 36 months of surgery, with 32% reporting persistent swelling. Of these, 43% reported swelling in the upper arm, 34% in the hand only, and 22% in both arm and hand [10].

An observational study of 60 Canadian women treated for breast cancer attending a dragon boat festival in Australia assessed the impact of air travel on swelling of the 'at risk' arm: Air travel did not cause significant change in arm fluid volume in the 'at-risk' arm for the majority of breast cancer survivors who participated in dragon boat racing, as measured using a bioimpedance analysis (BIA) ratio. Further study is required to determine whether the results are valid in the general population [12].

A pilot study to assess the effect of acute exercise on upper-limb volume and lymphedema symptoms in breast cancer survivors indicated that, although limb volume increased after a bout of acute exercise, it did so equally in the affected and unaffected limb. Results will be used to guide a subsequent larger study [13].

Physiotherapists play an important role in patient education...continued from front page

year follow-up. These researchers emphasized a very gradual progression of weight increase over time, and fitness trainers underwent a 3-day training program including an overview of lymphedema symptoms, prevention and treatment, and exercise protocols.

Another study [7] randomly assigned women who had axillary node dissection into two groups: no activity restriction combined with moderate resistance exercise (NAR, n = 104), and activity restrictions combined with usual care (AR, n = 100). Data were collected at baseline (before surgery), at 3 months, 6 months and 2 years post-surgery. There was no significant difference between the progression or development of arm lymphedema between the groups. The researchers concluded that "patients that undergo axillary node dissection should be encouraged to maintain physical activity in their daily lives without restrictions or fear of developing arm lymphedema".

References

1. Moseley AL, Carati CJ, & Piller NB. A systematic review of common conservative therapies for arm lymphoedema secondary to breast cancer treatment. *Annals of Oncology* 2007; 18: 639-646
2. Preston NJ, Seers K, Mortimer PS. Physical therapies for reducing and controlling lymphoedema of the limbs. *Cochrane Database of Systematic Reviews* 2004, Issue 4. Updated 2008, Issue 3. Art. No.: CD003141. DOI: 10.1002/14651858.CD003141.pub2.
3. Torres Lacomba M, et al. Effectiveness of early physiotherapy to prevent lymphoedema after surgery for breast cancer: randomised, single blinded, clinical trial. *BMJ* 2010; 340: b3596
4. Todd J, et al. A randomised controlled trial of two programmes of shoulder exercise following axillary node dissection for invasive breast cancer. *Physiotherapy* 2008; 94: 265-273
5. Schmitz KH. Balancing lymphedema risk: Exercise versus deconditioning for breast cancer survivors. *Exerc Sport Sci Rev* 2010; 38(11): 17-24
6. Schmitz KH, et al. Weight lifting in women with breast-cancer-related lymphedema. *N Engl J Med* 2009; 361: 664-73
7. Sagen A, Karsen R, & Risberg MA. Physical activity for the affected limb and arm lymphedema after breast cancer surgery. A prospective, randomized controlled trial with two years follow-up. *Acta Oncologica* 2009; 48: 1102-1110
8. Norman SA, et al. Lymphedema in breast cancer survivors: Incidence, degree, time course, treatment, and symptoms. *J Clin Oncol* 2009; 27(3): 390-397
9. Hayes SC, et al. Lymphedema after breast cancer: Incidence, risk factors, and effect on upper body function. *J Clin Oncol* 2008; 26: 3536-3542
10. Paskett ED, et al. The epidemiology of arm and hand swelling in premenopausal breast cancer survivors. *Cancer Epidemiol Biomarkers Prev* 2007; 16(4): 275-282
11. McLaughlin SA, et al. Prevalence of lymphedema in women with breast cancer 5 years after sentinel lymph node biopsy or axillary dissection: Objective measurement. *J Clin Oncol* 2008 Nov; 26(32): 5213-5219
12. Kilbreath SL, et al. Effect of air travel on lymphedema risk in women with history of breast cancer. *Breast Cancer Res Treat* 2010; 120: 649-654

References continued...

13. McNeely ML, et al. Effect of acute exercise on upper-limb volume in breast cancer survivors: a pilot study. *Physiotherapy Canada* 2009; 61(4): 244-251
14. Lee BB & Villavicencio JL. Primary lymphoedema and lymphatic malformation: are they the two sides of the same coin? *Eur J Vasc Endovasc Surg* 2010 May; 39(5): 646 - 53
15. Rockson SG. Diagnosis and management of lymphatic vascular disease. *J Am Coll Cardiol* 2008 Sep; 52(10): 799 - 806

To talk with a local physiotherapist about lymphedema or other health conditions, you can find a physiotherapist on the Canadian Physiotherapy Association website, www.physiotherapy.ca.

For more information about physiotherapy in your province/territory:

Yukon Territories: www.yukonphysio.org

British Columbia: www.bcphysio.org

Saskatchewan: www.saskphysio.org

Manitoba: www.mbphysio.org

Ontario: www.opa.on.ca

New Brunswick: www.physiotherapynb.ca

Nova Scotia: www.physiotherapyns.ca

Prince Edward Island:
www.physiotherapypei.ca

Newfoundland & Labrador:
www.physiotherapynl.ca

Northwest Territory & Nunavut:
www.physiotherapynb.ca/english/NWTandNUPhysiotherapy.htm

This Briefing is funded by the Canadian Physiotherapy Association, its Provincial Branches and Territorial Councils.

Distributed by:

Canadian Physiotherapy Association

National Communications Office

955 Green Valley Crescent, Suite 270

Ottawa ON K2C 3V4

613.564.5454/1.800.387.8679

information@physiotherapy.ca

www.physiotherapy.ca

Physiotherapy Briefings for Physicians is an initiative of the Physiotherapy Association of British Columbia. This topic was developed in consultation with the Canadian Physiotherapy Association.