National Lymphedema Network

LymphLink

Vol. 28, No. 2 April - June 2015 Article Reprints

Lower Limb Lymphedema after Gynecological Cancer Surgery: An Overview

By Kun Li, PhD, RN, Associate Professor of Nursing, Jilin University, China; Jeanna M. Qiu, Summer Research Intern, New York University; Mei R. Fu, PhD, RN, ACNS-BC, FAAN, Associate Professor of Nursing, New York University
New York, NY

Originally published in Pathways (Winter 2015), Canadian Lymphedema Framework. Reprinted with permission.

Introduction

Lower limb lymphedema is a debilitating adverse effect of surgical treatment for gynecological cancer.[1,2] Like primary lymphedema and breast cancer-related lymphedema, lower limb lymphedema related to gynecological cancer is incurable and chronic in nature.

Prevalence of lower limb lymphedema after surgery has been reported with a vast range from 1% to 49% depending on lymphedema definitions, lymphedema measures, type of gynecological cancers, and time to assess lymphedema after cancer surgery.[1] Lower limb lymphedema leads to important functional problems that negatively affect gynecological cancer survivors' daily living, work, emotional state, and overall quality of life as well as leading to financial burdens.[2]

Risk Factors

Research has identified that risk factors for lower limb lymphedema include the removal of pelvic lymph nodes, post-operative radiotherapy, and other factors. Removal of pelvic lymph nodes can significantly reduce the flow of lymphatic fluid from the lower limbs.[3] Post-operative radiotherapy was found to be an independent risk factor for lower limb lymphedema.[3] Lymphedema risk increases when a surgery or radiotherapy is more aggressive and more anatomically disruptive.[4] Patients undergoing a limited or diagnostic lymph node dissection followed by pelvic irradiation had a 25% to 30% incidence of lower extremity lymphedema, versus a 66% incidence in patients undergoing pelvic irradiation after a complete or therapeutic dissection.[5] Other personal factors that may contribute to the development of lymphedema after cancer treatment are age, obesity, gene mutation, and long hour travels.[6]

The initial onset of lower limb lymphedema usually appears as leg swelling and typically occurs within the first 12 months following gynecological cancer treatment; however onset can also occur many years later. Unfortunately, patients who've had gynecological cancer surgery have a life-time risk for lymphedema. Once lower limb lymphedema has developed, the condition very often becomes chronic. Along with swelling, survivors often suffer distressing symptoms of heaviness, discomfort, and pain, exerting tremendous difficulties in survivors' physical mobility and function.[1]

Assessment

Current criteria for the staging and grading of lower limb lymphedema vary in the literature. Multiple measurement methods have been used in clinical and research settings, including circumferential girth by tape measurements, water displacement, and infrared perometry. Circumferential girth measure by tape is the method used most often. However, the accuracy of measurement can be affected by many factors, such as the width and the tension of the tape and more importantly, an inconsistent process. Water displacement is an inexpensive method historically believed by many experts to be the gold standard of lymphedema measurement. Disadvantages of this technique include limited accuracy to detect swelling, no data on the location of the swelling, observer variability, and the inability to use this method when patients have wounds and infections. Infrared perometry uses an optoelectronic device consisting of optoelectronic sensors to measure limb volume. It provides an objective evaluation of limb volume, but is very costly.[7] Subjective assessment of patients' self-report of lymphedema symptoms is also used to identify women with or at a high risk of developing lymphedema.[8]

Management

There is no curative therapy for lower limb lymphedema. The goals of treatment or therapy focus on reducing the distressing symptoms of swelling, pain, heaviness, or discomfort, improvement of physical function, and overall quality of life. Patient education on self-care and effective lymphedema therapy by certified lymphedema therapists is crucial to the successful management of lower limb lymphedema.

Early detection is the key to timely lymphedema therapy and long-term

success in the management of lower limb lymphedema. Pre- and post-treatment education on the risk factors and importance of recognizing early signs of lymphedema (such as feeling heavier, pain, swelling, or any discomfort) should be provided and emphasized to patients to prevent these. Early signs not being recognized or being ignored by patients leads to delayed diagnosis and timely treatment.[9] It is critical that patients monitor symptoms related to lower limb lymphedema for early detection and to identify impending infections or exacerbations of existing lymphedema. Special attention should be given to those undergoing radiotherapy following cancer surgery. Once lymphedema is detected, it is important to inform patients about treatment options and methods of managing lymphedema.[10]

Complete decongestive therapy (CDT) is the most widely administered treatment option in the US. CDT consists of two stages, intensive and maintenance stages. CDT involves elevation of the swollen limb, manual or pneumatic lymph drainage, compression bandages and garments, exercise, and skin care.[11] Manual lymph drainage is administered by a trained therapist, preferably a lymphedema therapist certified by the Lymphology Association of North America (LANA) (for more detailed information go to: www.clt-lana.org). The therapist uses light pressure on the skin and subcutaneous tissue to increase reabsorption of the lymph and its propulsion or forward motion through the lymphatic vessels. A pneumatic lymph pump drains lymph by using multiple pressure chambers powered by electricity. The chamber(s) is gradually filled with air in the direction of lymphatic drainage using certain pressure. The use of non-stretch compression bandages and garments can improve the lymphatic flow by giving a specific graduated pressure to the lymphedematous limb.[12] To prevent infection and minor trauma or skin cracking, daily skin care is essential. Patients should be instructed to use warm water and soap to clean and dry the skin of the affected area and apply moisturizer to keep the skin moist.[13]

Surgical treatments, including lymphaticovenous anastomosis, microsurgical techniques for lymphatic grafting, and omental flap placement have been recently reported. However, these methods are not always satisfactory.[14]

Conclusion

There is a lack of standard criteria for the staging and grading of lower limb lymphedema. The urgent issue for different international professional organizations is to establish global assessment guidelines to facilitate research and clinical practice to ensure early detection and timely treatment. Patients may benefit from services offered by rehabilitation professionals and psychosocial or emotional support. Patients undergoing gynecological cancer treatment need, at a minimum, to be educated about the risk factors for developing lymphedema and about self-monitoring so that early detection and timely treatment can be achieved. There is also a need to develop clinical practice guidelines focusing on professional education, lymphedema recognition, and intervention strategies to increase awareness among healthcare professionals and patients at risk for lymphedema. The increased awareness could assist in early detection and timely management of this chronic condition.

References:

1. Beesley V, Janda M, Eakin E, Obermair A, Battistutta D. Lymphedema after gynecological cancer treatment : prevalence, correlates, and supportive care needs. Cancer. 2007;109(12):2607-14.
2. Ohba Y, Todo Y, Kobayashi N, et al. Risk factors for lower-limb lymphedema after surgery for cervical cancer. Int J Clin Oncol. 2011;16(3):238-43.
3. Tada H, Teramukai S, Fukushima M, Sasaki H. Risk factors for lower limb lymphedema after lymph node dissection in patients with ovarian and uterine carcinoma. BMC Cancer. 2009;9:47.
4. Kim JH, Choi JH, Ki EY, et al. Incidence and risk factors of lower-extremity lymphedema after radical surgery with or without adjuvant radiotherapy in patients with FIGO stage I to stage IIA cervical cancer. Int J Gynecol Cancer. 2012;22(4):686-91.
5. Pilepich MV, Asbell SO, Mulholland GS, Pajak T. Surgical staging in carcinoma of the prostate: the RTOG experience. Radiation Therapy Oncology Group. Prostate. 1984;5(5):471-6.
6. Vojáčková N, Fialová J, Hercogová J. Management of lymphedema. Dermatol Ther. 2012;25(4):352-7.
7. Hareyama H, Ito K, Hada K, et al. Reduction/prevention of lower extremity lymphedema after pelvic and para-aortic lymphadenectomy for patients with gynecologic malignancies. Ann Surg Oncol. 2012;19(1):268-73.
8. Carter J, Raviv L, Appollo K, Baser RE, Iasonos A, Barakat RR. A pilot study using the Gynecologic Cancer Lymphedema Questionnaire (GCLQ) as a clinical care tool to identify lower extremity lymphedema in gynecologic cancer survivors. Gynecol Oncol. 2010;117(2):317-23.
9. Lazzaro K. Lymphedema and Gynecologic Cancers. J Gynecol Oncol Nurse. 2009.19:6-11.
10. Petrek JA, Pressman PI, Smith RA. Lymphedema: current issues in research and management. CA Cancer J Clin. 2000;50(5):292-307.
11. Liao SF, Li SH, Huang HY. The efficacy of complex decongestive physiotherapy (CDP) and predictive factors of response to CDP in lower limb lymphedema (LLL) after pelvic cancer treatment. Gynecol Oncol. 2012;125(3):712-5.
12. Sawan S, Mugnai R, Lopes Ade B, Hughes A, Edmondson RJ. Lower-limb lymphedema and vulval cancer: feasibility of prophylactic compression garments and validation of leg volume measurement. Int J Gynecol Cancer. 2009;19(9):1649-54.
13. Kim SJ, Park YD. Effects of complex decongestive physiotherapy on the oedema and the quality of life of lower unilateral lymphoedema following treatment for gynecological cancer. Eur J Cancer Care (Engl). 2008;17(5):463-8.
14. Campisi C, Bellini C, Campisi C, Accogli S, Bonioli E, Boccardo F. Microsurgery for lymphedema: clinical research and long-term results. Microsurgery. 2010;30(4):256-60.