

Lower Extremity Lymphedema Presence in Female Cancer Survivors

BY LINDSEY NOLEN

For years, scientists and medical professionals have been able to make a clear association between cancer treatment and the presence of lymphedema. Yet, what has remained less clear is what percentage of cancer survivors go on to experience continued lower extremity lymphedema.

Lymphedema is a chronic condition with symptoms that include swelling, heaviness, pain discomfort, and decreased mobility in the lower and upper extremities, most often associated with side effects of cancer treatment. The condition impacts a person's ability to perform activities required of daily living, for example, walking, standing for long periods, or lifting heavy objects.

Left unchecked, the condition can cause chronic infections in the affected area of the body (often arms, pelvis, or legs) that in severe cases can lead to limb loss. For individuals with gynecologic and colorectal cancer, lower extremity lymphedema often becomes a challenge after surgeries involving lymph node dissection or pelvic radiotherapy.



Researchers with The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC – James) set out to determine what percentage of older adult female survivors of colorectal, endometrial, and ovarian cancer specifically have lower extremity lymphedema through a new study published in the journal *JAMA Network Open* (2022; doi: 10.1001/jamanetworkopen.2022.1671).

The first to assess lower extremity lymphedema in colon cancer survivors, this study collected data on 900 postmenopausal women (average age: 79) with endometrial, colon, or ovarian cancer. Together, their cancer had been diagnosed an average of 9 years prior.

“Before we did this study, not as much was known about lower extremity lymphedema,” explained Electra Paskett, PhD, senior author of the study and Associate Director of Population Sciences and Community Outreach at the OSUCCC – James. “I’m a breast cancer survivor, and when I was first diagnosed the first time 25 years ago, I developed lymphedema in my hand and my arm. From then, I started a whole research trajectory in this area.”

Paskett started by identifying the rates of lymphedema in breast cancer patients, what factors contribute to developing lymphedema, and their impact on life—she interviewed women about their experiences, what did they know before, how it changed their life—and

also providers: did they talk to patients about it? She put all this together and developed a lymphedema prevention intervention, piloted it, and then got funding to conduct a large study in the NCI cooperative clinical trial network.

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This study, CALGB 70305, was reported a few years ago and, even though it was the largest lymphedema prevention study conducted to date, it found no impact of the intervention—referral to physical therapy after surgery, at-home exercises, and prophylactic

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wearing of a compression sleeve and gloves. This was mainly because women did not adhere to the recommended exercises and sleeve wear.

“We did, however, demonstrate that women who were referred to physical therapy (i.e., the intervention group) were able to regain full range of motion of their arm sooner than women in the control group,” she said. “That is important because the faster we can get that arm moving, then the better for not only performing activities of daily living, but for moving that fluid out of the arm naturally.”

Study Details

Beginning her research, Paskett first studied upper extremity lymphedema and looked at prevalence, then incidence and associated characteristics, setting the stage for an intervention study. Then, she and her team started looking specifically at lower extremity lymphedema, again for the prevalence and factors that were associated.

They expected to find that many women have lower extremity lymphedema and that it goes unreported and untreated. In this particular study, they looked at the impact of lower extremity lymphedema on physical functioning and activities of daily living. This was specific to an older population through the Women’s Health Initiative Life and Longevity After Cancer (LILAC) Study.

“Several years ago, we wrote a grant and we got funded by the National Cancer Institute to start the LILAC study, which is a cancer survivor cohort from the Women’s Health Initiative. As part of the LILAC study, we surveyed the survivors, and I added questions about lymphedema,” Paskett explained. “We added questions for women who had breast cancer specifically to ask about upper extremity. Those who had colorectal, endometrial, or ovarian cancer were directed to specific questions about lower extremity swelling.”

As a result of this study, the researchers concluded that nearly one-third of older adult female survivors of colorectal, endometrial, or ovarian cancer have quality of life-impacting challenges with physical

activity due to chronic swelling in the lower extremities. For patients, this means they should be seen by physical therapy after surgery to assess for lymphedema and then, if symptoms arise, to assist with restoring physical functioning.

Survivors of colorectal cancer were disproportionately affected; 21.8 percent of these patients reported significantly declined physical function, as well as an increased need for help with activities of daily living, such as walking, standing for long periods, or lifting heavy objects. This association was not found in survivors of endometrial or ovarian cancer.

“In my opinion, 30 percent [of the overall study participants] was not surprising because we’ve had similar estimates for upper extremity lymphedema. What did surprise me was the magnitude of the association with physical functioning score and needing help with activities of daily living: women with lymphedema needed almost a twofold increase in help with an activity of daily living,” Paskett said. “What also surprised me was that this was highest in the colorectal cancer survivors.”

Paskett added that perhaps so little has been published about colon cancer survivors’ symptoms compared to those reported by women with ovarian and endometrial cancers. She believes the association between lower-extremity lymphedema and cancer treatment should be discussed when the treatment options are presented, as well as during and after treatments. This is because if changes, such as swelling, are detected early, it can be reversed easier.

“Say the person has surgery first, then chemo and radiation before each of those multiple modalities, there should be a discussion about the risk for lymphedema and what to look out for,” Paskett advised. “Now, that’s what happened to me, it was after I started radiation that I had the swelling, but my radiation oncologist told me to look out for swelling in my hand. That’s where it started.”

Since then, and through her research, Paskett has pushed for changes in the national clinical practice guidelines for assessing and treating lower-extremity lymphedema in older cancer survivors. She says that these changes are now in the NCCN Survivorship Guidelines. While they now exist in the lymphedema world, she and her colleagues want them to be included in cancer treatment and survivorship guidelines as well.

“We know that if we reduce physical functioning, especially among older individuals, it severely impacts their overall health, and well-being and can actually affect mortality,” Paskett stated. “The idea is to help people keep as active and be able to do the activities of daily living for as long as possible.”

If this is achieved, the researchers believe “effective and timely interventions can be given to preserving physical ability and independence in this population.” As this becomes increasingly true, and early detection and more effective treatments arise, survivors of cancer can continue living longer lives.

“Our results would [also] suggest that we would need to do a similar assessment in men with colorectal cancer,” Paskett said. “The results suggested it’s not only colorectal cancer survivors we would need to examine, but [also] prostate cancer, bladder cancer, testicular cancer, any other cancers that would affect men and would involve a surgery that impacts the lymph system in any part of the body. Men and women with, for example, melanoma or head and neck cancer surgery suffer from lymphedema in the head/neck.”

Moving to the future, Paskett believes new technologies, such as reverse axillary mapping, could have a vast impact on how lower-extremity lymphedema may be addressed. Additionally, she believes there may be some use for robotics across the space, as this type of surgery reduces trauma to the lymphatic system, thus reducing blockage and hopefully lymphedema. “I think there are some promising things coming on the horizon.”

Lymphedema Interventions

For those currently struggling with lymphedema, she recommends these patients research effective and timely interventions for the condition. To begin this process, Paskett suggests they seek referral to a lymphedema specialist specifically trained in assessing and treating

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Learning Objectives for This Month’s Activity:

After participating in this activity, readers should be better able to

1. Identify a risk factor for and a risk from lymphedema.
2. Explain the results and recommendations from the CALGB70305 and the Women’s Health Initiative Life and Longevity After Cancer (LILAC) studies.

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lymphedema. These are usually certified specialists who can begin compression, compression garments, and manual lymphatic drainage, and more.

“You get the best response if lymphedema is diagnosed early and you can get into treatment. A lot of times the providers can give you some means of exercise or things like that to prompt the muscles to actually help move the fluid back out. The interventions that the provider will suggest, like compression and the manual lymphatic drainage, can have an effect,” Paskett noted. **OT**

Lindsey Nolen is a contributing writer.