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LYMPHEDEMA CAN BE MANAGED WITH TREATMENT, EDUCATION

On a sunny day in November, on the fourth floor of the Rusk Institute of Rehabilitation Medicine, Peggy Liegel, 58, sits on a treatment bed in the Lymphedema Clinic while physical therapist Elizabeth Draper measures the circumference of her arm at a number of points from top to bottom. The goal is to detect a reduction in swelling caused by lymphedema, a side effect of Liegel's treatment for breast cancer four years earlier.

Liegel's problems with swelling and pain in her arm began in 2007, after she underwent a lumpectomy of her right breast, followed by chemotherapy and removal of most of her underarm lymph nodes on that side. Further surgery, a mastectomy, plus radiation followed in 2008.

Long thought to be untreatable, lymphedema affects up to 40 percent of patients who've had breast cancer surgery—two out of every five women. Lymph, a clear fluid that contains disease-fighting white blood cells, as well as proteins and fats, is normally flushed from the body by the lymph nodes. When they are removed, the fluid instead can accumulate in the arm. Lymphedema can develop immediately or years after surgery or radiation therapy, one reason why patients are advised not to have blood drawn or blood pressure taken on the side where the arm could be affected.

Manual lymphatic drainage is the mainstay of therapy. In the clinic, Draper lightly performs the therapy along Liegel's arm and explains that lymph flow can slow after removal of lymph nodes, sometimes causing a backup of protein and fluid, resulting in swelling. "We're opening that up," she says. Draper has also shown Liegel a simplified version she can do for herself at home in the shower. Patients are taught techniques to reduce their swelling and pain at home, enabling them eventually to manage lymphedema on their own.

"The program," Liegel says, "has given me the sense that I can become well again. I know now that I don't have to be crippled by lymphedema." The Outpatient Physical Therapy Lymphedema Program at Rusk started more than a decade ago and now has one of the largest clinics treating both men and women in the tristate area. A new approach combining low-level

laser therapy with manual lymphatic drainage in the treatment of breast cancer-related lymphedema is being investigated in the clinic. The combination therapy may provide better results, possibly changing the standard of care.

Lowering risk through education and self-care

Mei R. Fu, PhD, RN, assistant professor at NYU College of Nursing, has spent the last decade working to understand lymphedema in breast cancer patients and help them lower their risk through education and self-care. In a five-year intervention study supported by the Avon Foundation, Dr. Fu has recruited 150 breast cancer patients treated at the NYU Clinical Cancer Center and followed 110 of them for 12 months. Before surgery, all were taught daily exercises to promote lymph drainage and build muscle, which helps clear the 3 liters of lymph fluid that must be removed from the system daily. Before and after surgery and during follow-up visits at 6 months, an infrared perometer measured their lymph fluid levels. Even subtle increases in fluid levels were aggressively managed at follow-up. By one year, fewer than 4 percent of patients developed clinical lymphedema; those patients who did were sent to Rusk for physical therapy.

"We have opened a new chapter in the spectrum of cancer survivorship by intervening preoperatively with behaviors that reduce the risks of lymphedema after surgery and beyond," says breast-cancer surgeon Dr. Deborah Axelrod, who works closely with Dr. Fu on lymphedema management. "Our focus is on wellness and the strategies that optimize good health and reduce treatment complications."

To help determine which patients are at highest risk, Dr. Fu has received support from the Oncology Nursing Society to study this group of patients for variations in gene patterns related to inflammation and the lymphatic system. The hope is that the identification of specific genomic risk factors could lead to a screening test. She recently received a grant from the NIH to examine proinflammatory biomarkers called cytokines, as well as genomic variations related to infection and inflammation among

lymphedema sufferers, who are prone to skin fibrosis and cellulitis.

Lymphedema is a lifetime condition, Dr. Fu points out, but it can be successfully managed to eliminate symptoms. •

—AUBIN TYLER

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