Researcher concludes five-year multisite trial to assess lymphedema prevention

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Vanderbilt University Research Professor of Nursing Sheila Ridner recently completed a large, randomized trial to assess early detection methods for a common side effect of breast-cancer

treatments—lymphedema.

Lymphedema, a chronic condition that causes fluid buildup in the body, can be caused by damage from radiation treatment for breast, head, neck or ovarian cancer. The resulting swelling can complicate patients' mobility, eating and swallowing, and it can even result in death.

The study Ridner designed and led was to compare the effectiveness of bioimpedance spectroscopy (BIS) measuring technology with traditional tape measurements in early identification of lymphedema swelling. BIS, a painless and non-invasive procedure that runs an electronic signal through the body, uses technology similar to that used by electronic monitors for body mass index.

Patients were assigned to a BIS or measurement group at 13 sites around the world. Those in the BIS group were assessed using an L-Dex U400 from ImpediMed Ltd. The trials found that patients with early detection who used L-Dex and additional intervention methods were less likely to progress to chronic lymphedema than patients monitored with a tape measure.

The statistically significant results were published in *Lymphatic Research and Biology* earlier this year. In their paper, Ridner and her co-authors concluded that BIS screening should be "a standard approach for prospective breast cancer-related lymphedema surveillance."

Currently, 5% to 40% of women who undergo breast cancer surgery will likely experience some level of lymphedema, according to Breastcancer.org, and that risk is higher in women who undergo chemotherapy or radiation.

Earlier detection of lymphedema "gives clinicians the information they need to begin early intervention on their patients at a stage when it's

possible to keep the lymphedema from advancing," Ridner said. "These findings provide all clinicians addressing lymphedema in breast cancer patients with clear scientific data regarding the optimal measurement and sound evidence to switch from using tape measurements.

"This is a victory for patients, particularly the 1,200 breast cancer patients who volunteered for this study. I thank them and all the collaborators at 13 hospitals across the U.S. and Australia for their dedicated work over several years," she added.

Before joining Vanderbilt School of Nursing, Ridner was an oncology nurse who saw the debilitating issues lymphedema caused patients. Then her mother developed lymphedema. Since then, Ridner has dedicated much of her research to increasing quality of life for patients dealing with the painful condition. She has worked on alleviating lymphedema in various ways, from studying yoga as a form of therapy to working on a potential head and neck device to alleviate patients' pain. Ridner has received more than $7 million in funding for treatment research since 2001.

"My mother was diagnosed with breast cancer and developed the condition," said Ridner. "It got to the point where she couldn't even play her favorite instrument—the piano. If we could have caught it earlier, it may not have progressed as it did for her."

More information: Sheila H. Ridner et al, A Comparison of Bioimpedance Spectroscopy or Tape Measure Triggered Compression Intervention in Chronic Breast Cancer Lymphedema Prevention, *Lymphatic Research and Biology* (2022). DOI: 10.1089/lrb.2021.0084

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