

# Improved imaging for identifying breast cancer in overweight women

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Increasing the ability to identify sentinel nodes—the very first lymph nodes that trap cancer cells draining away from a breast lesion site—has a major impact in the treatment and outcome of breast cancer patients, possibly eliminating the need for unnecessary and painful surgery. Researchers found that using SPECT/CT imaging aids in sentinel node identification—especially for overweight or obese women, according to a report in the February issue of the *Journal of Nuclear Medicine*.

Lymphoscintigraphy (a commonly performed nuclear medicine procedure that makes the lymphatic system visible to specialized cameras)—used with single photon emission computed tomography (SPECT)/computed tomography (CT) imaging—boosted sentinel node identification not only for the general population but also for those who were overweight.

"The addition of SPECT/CT with lymphoscintigraphy enhanced sentinel node identification in overweight patients with breast cancer," noted Hedva Lerman, vice chair of the nuclear medicine department at Tel-Aviv Sourasky Medical Center in Israel. Failure to identify sentinel nodes is more frequent in overweight or obese patients, and improved techniques are needed to guide surgeons to their location, said the co-author of "Improved Sentinel Node Identification by SPECT/CT in Overweight Patients With Breast Cancer."

She explained, "While the identification of the sentinel node is an important part of surgical management approaches in breast cancer,

obesity is a significant factor in why it fails and inevitably leads to occasional—and unnecessary—full axillary lymph node dissection (a more complex surgery that removes all lymph nodes in the armpit region)."

Breast cancer is the second leading cause of cancer death in this country, with women having a 1 in 8 chance of developing it during their lives. When breast cancer is suspected, women may undergo sentinel node biopsy, a minimally invasive surgical procedure used to determine whether breast cancer has spread to lymph glands under the arm, said Lerman. The biopsy requires the removal of only a few first draining lymph nodes for close review, and the lack of cancer cells in these nodes could eliminate the need for removing additional lymph nodes. Identifying the sentinel node before this surgery is key; by removing and examining it, a doctor can determine if breast cancer has spread.

"Accurate staging of newly diagnosed patients with breast cancer is of major importance for optimizing breast cancer patients' treatment," said Lerman. Knowing whether the cancer has spread helps determine the stage and approach to treatment, she noted. "Performing lymphoscintigraphy by using SPECT/CT allows detection of sentinel nodes preoperatively in more patients, thus reducing the rate of failure to identify these nodes, especially in overweight patients," said Lerman. She added, "It also provides a more precise anatomical localization of the nodes prior to surgery, thus facilitating the surgical procedure."

In this study, Israeli researchers calculated their subjects' body mass indexes and evaluated 220 women with invasive breast cancer by identifying sentinel nodes in three ways: using an intraoperative blue dye technique, lymphoscintigraphy (pre-operative two-dimensional imaging) and SPECT/CT lymphoscintigraphy. Researchers found that SPECT/CT lymphoscintigraphy also discovered sentinel nodes that were not identified with the intraoperative blue dye technique in a significant

number of patients. "As the number of integrated hybrid SPECT/CT systems evolves, our results hopefully will encourage the use of lymphoscintigraphic SPECT/CT in other centers," said Lerman. "Data will continue to be collected in identifying sentinel nodes in 'problematic' subgroups of patients with breast cancer and in those with other solid tumors where nodal staging is indicated," she said.

Source: Society of Nuclear Medicine

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