

CHICAGO -- December 2, 2010 -- A new molecular technique for detecting breast cancer picks up almost as many cases of breast cancer as mammography, but should not substitute for a biopsy, according to a study presented here at the 96th Annual Meeting of the Radiological Society of North America (RSNA).

Breast specific gamma imaging (BSGI) does not take an image of a patient's anatomy in detecting cases of breast cancer. But because only a few cases of cancer were detected by both breast specific gamma imaging and mammography, as well as ultrasound, the latter 2 techniques, which have been in existence for longer, should still determine when a biopsy is needed.

"BSGI is a nuclear medicine modality used to look for breast cancer, especially in women with dense breast tissue and those at high risk for breast cancer," said Barbara H. Ward, MD, Weinstein Imaging Associates, Pittsburgh, Pennsylvania, on November 29.

"If you're looking at a mammogram, the white area is working breast tissue, grey is fat, and abnormalities also show up as white," explained Dr. Ward. "But because this is molecular imaging, it is purely physiologic, and doesn't look at the anatomy at all. It doesn't have anything to do with how dense the breast is, it has to do with what is going on metabolically inside the tissue," she said.

In the study, 128 lesions from 123 patients were tested by all 3 modalities. In fact, 111 were benign, while 17 were malignant. But, BSGI determined 41 to be malignant (including 13 of the malignant ones), mammogram found 45 to be malignant (including 10 that actually were malignant), and ultrasound found 13 to be malignant, but was correct in that regard in only 2 cases.

The sensitivity for BSGI was 76%, while the specificity was 75%, while for mammogram, the numbers were 56% and 67%, and ultrasound had only 12% sensitivity and 90% specificity.

Two cancers were visualised on all 3 modalities, 4 were found on both BSGI and mammogram, and 7 were detected on BSGI alone, and 4 with mammogram alone.

"This is not a screening tool, but it is to be used in problem-solving," said Dr. Ward. If the mammogram looks normal, but it is really limited, because the patient has really dense breasts, or the patient is at high risk, because they have the BRCA 1 or 2 gene, a first degree relative with breast cancer, or certain pathology on previous breast biopsy, then BSGI should be used," she added, noting that the modality has a radiation dose 6 or 7 times greater than that of a mammogram.