

BSGI May Reduce Unnecessary Breast Biopsies

A study presented at the 19th Annual National Interdisciplinary Breast Center Conference in Las Vegas suggests that women who require additional diagnostic imaging after a questionable mammogram may be at risk for unnecessary biopsies when only MRI is offered. The study found that breast specific gamma imaging (BSGI) has comparable sensitivity and superior specificity when compared to MRI.

“Our goal was to see if BSGI could be used to improve upon the specificity of MRI and also reduce the number of biopsies,” says Leora Lanzkowsky, MD, the director of women’s imaging at CHW-Nevada Imaging Centers in Las Vegas. “The study is important because, with the addition of BSGI, we could eliminate the need for 50% of biopsies or possibly change a patient’s decision to have more radical surgery.”

BSGI, a molecular breast imaging technique, is a follow-up to mammography that can see lesions independent of tissue density and discover early stage cancers. With BSGI, the patient receives a pharmaceutical tracing agent that is absorbed by all the cells in the body. Due to their increased rate of metabolic activity, cancerous cells in the breast absorb a greater amount of the tracing agent than normal, healthy cells and generally appear as hot spots on the BSGI image.

Over the course of 18 months, at three medical centers, BSGI and MRI were performed in women requiring additional diagnostic imaging, as deemed necessary by a physician, following a mammogram. The majority of these patients had either a personal history of breast cancer or a combination of other factors placing them at high-risk for breast carcinoma. The interpreting radiologist had access to all prior images and patient information for image interpretation for both studies. All biopsies were performed as deemed necessary by a physician.

There were 120 women who had 122 abnormal biopsies requiring additional intervention. There were a total of 16 high-risk lesions (11 atypical ductal hyperplasias, four lobular carcinomas in situ, and one papilloma) and 106 malignant lesions (17 ductal carcinomas in situ, 70 invasive ductal carcinomas, 14 invasive lobular carcinomas, three papillary carcinomas, one tubular carcinoma, and one squamous cell carcinoma). BSGI was negative in a total of 10 cases (six malignancies and four high risk lesions) and indeterminate in three (all malignancies). MRI was negative in a total of 11 cases (seven malignancies and four high risk lesions) and indeterminate in six (three malignancies and three high-risk lesions). Excluding the indeterminate findings from the sensitivity analysis, BSGI was positive 110/120 cases (90.6% sensitivity) and MRI was positive in 106 out of 117 cases (90.6% sensitivity). BSGI was equal in sensitivity to breast MRI in the detection of malignant and high-risk breast lesions, while reducing the rate of indeterminate findings by 50%.

Of the 37 patients who had benign biopsy results, MRI and BSGI were concordant in 16 patients yielding a specificity of 38%. For the patients with discordant MRI and BSGI findings, BSGI specificity was 52% while MRI had a specificity of 19%. Overall, the specificity for BSGI and MRI were 46% and 27% respectively.

“If we can utilize BSGI to avoid unnecessary biopsies, not only are we saving women from an uncomfortable procedure, scarring, and the expense of surgery, we save time so patients can move more quickly to treatment,” says Lanzkowsky. “In this group of patients with complex radiographic findings requiring both BSGI and MRI in the course of clinical care, BSGI provided comparable sensitivity, higher specificity, and fewer indeterminate results than MRI.”

— *Source: Dilon Technologies, Inc*