

New mammography technology improves cancer detection

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A new radiological diagnostic tool called stereo mammography allows clinicians to detect more lesions and could significantly reduce the number of women who are recalled for additional tests following routine screening mammography.

The findings from a clinical trial underway at Emory University were presented today at the annual meeting of the Radiological Society of North America held in Chicago.

In the study, stereoscopic digital mammography reduced false-positive findings by 49 percent compared to standard digital mammography, and reduced missed lesions by 40 percent, according to Dr. Carl D'Orsi, MD, professor of radiology, Emory University School of Medicine, and director of breast imaging.

“This finding is very significant because it shows the technology cuts by almost half the number of women who are recalled for additional tests, reduces the number of false positives that typically occur in standard mammograms and eliminates significant anxiety in patients and their loved ones,” says Dr. D'Orsi.

“Standard mammography is widely considered to be one of the most difficult exams to read because lesions may be disguised by normal tissue,” says Dr. D'Orsi. “At the same time, false-positives can also occur because of the two dimensional images provided by the existing technology.”

Stereo mammography consists of two digital x-ray images of the breast acquired from two different points of view separated by about eight degrees. When the images are viewed on a stereo display workstation, the radiologist is able to see the internal structure of the breast in three dimensions.

In the study, researchers use a full-field digital mammography unit modified to take stereo pairs of images. A stereo display workstation allows the mammographer to fuse the stereo image pair, while viewing the breast in depth.

As of July 2007, 1,093 patients at elevated risk for developing breast cancer were enrolled in the clinical trial. Each patient received a full-field, standard digital mammography screening examination and a full-field, stereoscopic digital exam. The exams were read independently by different radiologists. A total of 259 suspicious findings were detected by the combined mammography procedures and were referred for additional diagnostic testing, including biopsy when indicated. Of those, 109 were determined to be true lesions. Standard mammography missed 40 of the 109 lesions while the stereoscopic exam failed to detect 24, a 40 percent decrease in missed lesions.

According to the researchers, increasing the use of stereo mammography at many institutions across the country would require simple upgrades to existing digital mammography equipment and software. The stereo digital exam currently takes the same amount of time to read as a standard mammogram, and researchers are working toward making radiation exposure in stereo scans comparable.

Source: Emory University

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