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NEWS

RSNA Press Release

Screening MRI Allows Detection of More Breast Cancers in High-Risk Women

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At A Glance

- MRI helps detect breast cancers not found by mammography or clinical breast exam.
- The American Cancer Society recommends annual screening with MRI in addition to mammography beginning at 30 for women at high risk of developing breast cancer.
- Five to 10 percent of all breast cancers can be attributed to genetic predisposition.

OAK BROOK, Ill. - Magnetic resonance imaging (MRI) enables radiologists to accurately identify tumors missed by mammography and ultrasound, according to a multicenter study comparing the three screening methods in women at high-risk for breast cancer. The findings of the study appear in the August issue of the journal *Radiology*.

"Women at high risk for breast cancer can benefit from undergoing screening MRI," said the study's lead author, Constance Dobbins Lehman, M.D., Ph.D., professor of radiology at the University of Washington School of Medicine and director of breast imaging at the Seattle Cancer Care Alliance. "Of all the breast imaging tools we have currently available, MRI is clearly the best at detecting cancer."

According to the National Cancer Institute, genetic predisposition accounts for five to 10 percent of all breast cancers. Women who are genetically at high risk for breast cancer need to begin screening at a younger age, because they often develop cancer earlier than women at average risk. However, women below age 50 are more likely to have dense breast tissue, which can limit the effectiveness of mammography as a screening tool. The American Cancer Society recommends that women with a high risk of developing breast cancer should be screened with MRI in addition to their yearly mammogram beginning at age 30.

"It is frightening to be told that you're at very high risk for developing breast cancer," Dr. Lehman said. "It's important that these women understand that there is something they can do to increase their chances of early detection in the event that they do develop breast cancer."

For this study, researchers at six facilities studied 171 asymptomatic women over age 25 (average age 46) with at least a 20 percent lifetime risk of developing breast cancer to compare screening performance of MRI and mammography in high-risk patients. Each of

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the women underwent MRI, mammography and ultrasound.

Sixteen biopsies were performed, and six cancers were detected for an overall cancer yield of 3.5 percent. All six of the cancers were detected with MRI, while two cancers were detected with mammography and only one cancer was detected with ultrasound. The four cancers found in women with dense breast tissue were only detected with MRI. Biopsy rates were 8.2 percent for MRI and 2.3 percent for mammography and ultrasound. The positive predictive value (PPV) of biopsies performed as a result of MRI findings was 43 percent.

Based on these findings, the researchers estimate that, compared to mammography and ultrasound, screening with MRI will allow detection of 23 more cancers per 1,000 high-risk women screened.

While MRI has been shown to be an effective screening tool for women genetically predisposed to developing breast cancer, there is no evidence to support MRI screening in average-risk women. "Although MRI is a very powerful tool for detecting cancer, it is not perfect," Dr. Lehman cautioned. "There are benign areas of breast tissue that can look suspicious but do not represent breast cancer and yet may lead to a biopsy."

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"Cancer Yield of Mammography, MRI, and Ultrasound in High Risk Women: Prospective Multi-institution Breast Cancer Screening Study." Co-authors of the paper are Thomas Claudine Isaacs, M.D., Mitchell D. Schnall, MD, Ph.D., Etta Pisano, M.D., Susan M. Ascher, M.D., Paul T. Weatherall, M.D., David A. Bluemke, M.D., Ph.D., Deborah J. Bowen, Ph.D., P. Kelly Marcom, M.D., Deborah K. Armstrong, M.D., Susan M. Domchek, M.D., Gail Tomlinson, M.D., Ph.D., Steven Skates, Ph.D., Constantine Gatsonis, Ph.D.

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