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NEWS

RSNA Press Release

Annual Screening with Breast Ultrasound or MRI Could Benefit Some Women

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At A Glance

- A large-scale clinical trial has found that annual screening with ultrasound in addition to mammography may find more cancers in women with dense breasts who are at elevated risk for breast cancer.
- For some groups of women, screening with MRI in addition to mammography helps detect breast cancer at an earlier stage.
- Supplemental screening with ultrasound or MRI increases the risk of false-positive findings.

CHICAGO — Results of a large-scale clinical trial presented today at the annual meeting of the Radiological Society of North America (RSNA) provide the first strong evidence of the benefit of annual screening ultrasound for women with dense breasts who are at elevated risk for breast cancer. In addition, the study confirmed that MRI is highly sensitive in depicting early breast cancer.

"We found that annual screening with ultrasound in addition to mammography significantly improves the detection of early breast cancer," said lead researcher Wendie A. Berg, M.D., Ph.D., breast imaging specialist at American Radiology Services, Johns Hopkins — Green Spring Station in Lutherville, Md., "and that significantly more early breast cancer can be found when MRI is performed, even after combined screening with both ultrasound and mammography. However, both ultrasound and MRI increase the risk of false-positive findings."

Women who are 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.

Multicenter trials have shown that MRI enables radiologists to accurately identify tumors missed by mammography and ultrasound. The American Cancer Society recommends that some groups of women with a high risk of developing breast cancer should be screened with MRI in addition to their yearly mammogram beginning at age 30. However, MRI is not for everyone.

"Because MRI is a very expensive test and requires intravenous contrast, it is something we only recommend for screening the approximately 2 percent of women who are known or

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likely carriers of BRCA1 or BRCA2 gene mutations or have other unusual circumstances that put them at very high risk for breast cancer," Dr. Berg said.

"There are another 10 to 15 percent of women who are at some increased risk because of personal history of breast cancer, family history of breast cancer and/or dense breast tissue," she added. "For many of these women, MRI is not currently justified, but annual ultrasound would be appropriate in addition to mammography."

The researchers studied 612 women, mean age 55 years, at elevated risk of breast cancer enrolled at 14 sites in the American College of Radiology Imaging Network (ACRIN) 6666 trial funded by the Avon Foundation and the National Cancer Institute. Women underwent baseline screening mammography and ultrasound with follow-up exams at 12 and 24 months and then a single, contrast-enhanced MRI at 24 months.

Sixteen women were diagnosed with breast cancer. Twelve of the cancers were invasive, and four were ductal carcinoma in situ (DCIS). Over the course of the study, 50 to 56 percent of cancers were shown on mammography. Adding ultrasound allowed detection of 70 to 94 percent of cancers. Adding MRI allowed for detection of additional cancers at their earliest stage.

The study also found that supplemental screening with ultrasound or MRI significantly increased the risk of false-positive findings, leading to unnecessary biopsies in some women.

"It is important that women are advised of the increased potential of undergoing an unnecessary biopsy as a result of screening with ultrasound or MRI," Dr. Berg said, "but we hope this study motivates women and their doctors to learn more about their risk factors and to consider supplemental screening in addition to mammography where indicated."

Coauthors are Zheng Zhang, Ph.D., Jean B. Cormack, Ph.D., Roberta A. Jong, M.D., Richard G. Barr, M.D., Ph.D., Daniel E. Lehrer, M.D., and other ACRIN 6666 investigators.

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Note: Copies of RSNA 2009 news releases and electronic images will be available online at *RSNA.org/press09* beginning Monday, Nov. 30.

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