

Third Study Finds MRI Superior to Mammography

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ORLANDO — A British study has found magnetic resonance imaging to be nearly twice as sensitive as x-ray mammography for detecting breast cancers in young women at high risk for disease due to genetic mutations or other family history of breast disease.

The finding does not resolve concerns about cost, however.

In a review of the study at the annual meeting of the American Society of Clinical Oncology, Kelly K. Hunt, M.D., calculated that magnetic resonance imaging (MRI) would find six breast cancers in 100 patients screened. "The positive predictive value being only 6%, can we really afford this?" asked Dr. Hunt of the M.D. Anderson Cancer Center in Houston.

'In younger women, 25% of cancers are missed, compared with 10% in older ages. Clearly, there's a need for more sensitive surveillance.'

The Magnetic Resonance Imaging for Breast Screening (MARIBS) researchers reported their conclusions simultaneously at the meeting and in *The Lancet* (2005;365:1769-78).

Theirs is the third published study to support MRI in young high-risk women with dense breast tissue that tend to obscure tumors on mammograms (*N. Engl. J. Med.* 2004;351:427-37 and *JAMA* 2004;292:1317-25).

All told, 35 breast cancers were found in 649 women who underwent a screening round of MRI and mammography. These cancers included 19 breast cancers detected by MRI alone and 6 by mammography alone. Only eight were detected by the two screening methods, and two were missed by both.

Investigator Martin O. Leach, Ph.D., calculated that MRI detected 77% of breast tumors, and mammography detected 40%. Combining the two technologies produced a sensitivity of 94%, which Dr. Leach of the Institute of Cancer Research in London described as "very reasonable."

While MRI detected tumors in all risk groups enrolled in the study, it was dramatically more effective than mammography in those women who were carrying the *BRCA 1* mutation. Dr. Leach reported MRI sensitivity among *BRCA 1* carriers to be 92% vs. 23% with mammography.

Detected cancers were generally small (43% were less than 15 mm), high grade (54% were G3), and lymph node negative (81%), according to Dr. Leach. He said the recall rate was high, but comparable with rates in older women screened by mammography under the U.K.'s breast screening program.

The Medical Research Council and the National Health Service Research and Development Board supported the trial. The

trial, begun in 1997, recruited patients at 22 genetics and MRI centers in the United Kingdom.

Enrollment in the study was limited to women who were 35-49 years of age, who were *BRCA 1* or *BRCA 2* carriers or who came from families with up to four cases of breast cancer in members under the age of 60 or more than four cases of breast and ovarian cancer in which the ovarian cancer occurred in women at any age. Women who reported a history of breast

cancer were not included, the researchers explained.

"In younger women, 25% of cancers are missed, compared with 10% in older ages. Clearly, there's a need for more sensitive surveillance," Dr. Leach said of the target population.

He and his colleagues concluded, "Annual screening combining MRI and [mammography] would detect most tumors in this high-risk group."

Dr. Hunt said the most recent trial

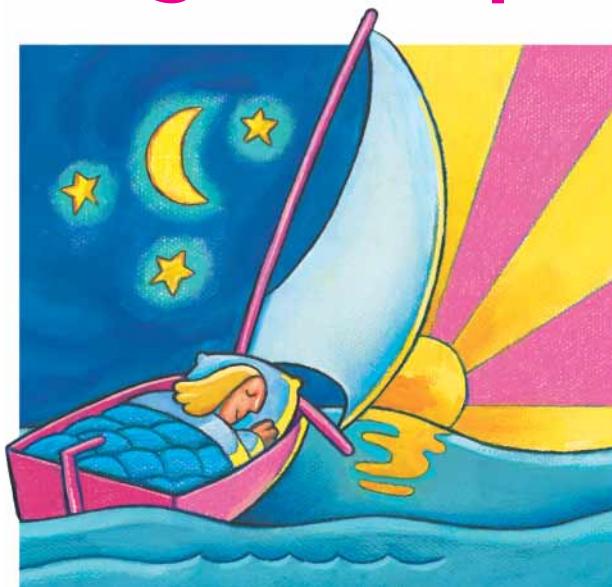
shows that MRI screening is feasible in the high-risk population.

On the issue of cost, she questioned the role of clinical breast examination in the study and of ultrasound, which she noted was used for localization, but not screening.

"The challenges will be to identify the appropriate population for screening, how frequently they should be screened, and the use of clinical breast examination, mammography and ultrasound," Dr. Hunt said. ■

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