Annual MRI a Plus in Women With Past Cancer

BY RICHARD HYER

FROM THE ANNUAL MEETING OF THE RADIOLOGICAL SOCIETY OF NORTH AMERICA

CHICAGO – Women with a personal history of breast cancer should be advised to consider an annual screening breast MRI as an adjunct to mammography, despite the American Cancer Society's current position that there is insufficient evidence to recommend for or against it, according to a retrospective study from the University of Washington Medical Center, Seattle.

"We found that the diagnostic performance of screening breast MRI was similar or higher overall in women with a personal history [of breast cancer] alone, compared to those with a genetic or family history, the latter being the group currently recommended for screening by the American Cancer Society," said lead author Dr. Wendy B. DeMartini at the meeting.

American Cancer Society guidelines recommend an annual screening with breast MRI as an adjunct to mammography for women with a genetic or family history of breast cancer, but not for those with a personal history of the disease. MRI is highly sensitive and allows early detection of otherwise occult breast carcinoma, and mammography is an imperfect tool for detection, Dr. DeMartini said. This is critical in women with a personal history of treated breast cancer because they are at elevated risk for a second cancer, and finding second cancers early increases their chance of survival. "Annual screening with MRI may be important in this group," she said.

Disadvantages of MRI include the use of intravenous contrast material, the potential for false positives, and increased cost.

The American Cancer Society's most recent guidelines issued in 2007 recommend annual screening MRI in addition to mammography for women in two high-risk groups: those with genetic mutation such as the BRCA gene or first-degree relatives with the gene, and those with at least a 20%-25% lifetime risk, based on family history. The guidelines concluded that there was insufficient evidence to recommend for or against breast MRI in patients with only a personal history of the disease but no genetic or family risk.

"And thus it's been quite challenging, as you can imagine, for women and their physicians to know whether these breast cancer survivors should be having breast MRI once a year with their mammograms," she said.

This study was designed to compare the diagnostic performance of screening breast MRI in women with a personal history of treated breast cancer alone, to that in women with a genetic or family history of breast cancer.

A review of the University of Washington's electronic medical database identified all women who underwent a first screening breast MRI for a clinical indication and had either a personal history or genetic or family history of breast cancer during the period January 2004 – June 2009. Each patient contributed her first screening breast MRI to the study. For each examination, the highest-level final breast imaging-reporting and data system (BI-RADS) assessment was used.

Cancer status was followed for 365 days following index breast MRI and was considered positive if there was a diagnosis of invasive carcinoma or ductal carcinoma in situ.

Measures of diagnostic performance that were calculated included the recall rate, or number of women recalled for additional testing; the positive predictive value for malignancy at biopsy; the cancer yield, or percent found to be malignant among those screened; and the sensitivity and specificity.

Of the 1,026 women who underwent a first screening breast MRI in the study interval, 973 were screened for personal history and/or genetic or family history. These made up the study population. Of these, 646 (66%) were screened for personal history alone, and the remaining 327 (34%) were screened for genetic or family history. Women who fell into both categories were classified as genetic or family history.

In the 973 women, 27 malignancies were found, said Dr. DeMartini. "Twenty-five of them were found with breast MRI," she said. The other two were not found with breast MRI and were false negatives; both occurred in the personal history group. Of the 25 malignancies, MRI detected 20 in the personal history group and 5 in the genetic family group, she said.

In diagnostic performance, the recall rate – the percentage recalled for additional testing – was 9.3% (60 of 646) in the personal history group, significantly lower than the 15.0% (49 of 327) in the genetic or family history group.

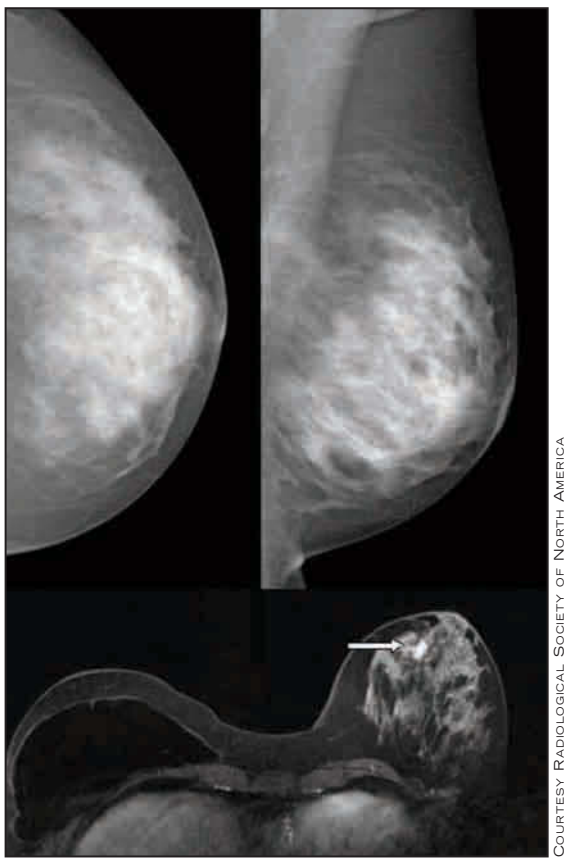
The positive predictive value of biopsy – the percentage found to be malignant – in the personal history group was 35.7% (20 of 56), significantly higher than in the genetic and family history group (12.2%, or 5 of 41).

The cancer yield – the fraction of all women screened who were found to have a malignancy – was 3.1% (20 of 646) in the personal history group, or more than twice the 1.5% (5 of 327) found in the genetic and family history group ($P = .14$). The sensitivity was 90.9% (20 of 22) in the personal history group (which had two false negatives not found with breast MRI) vs. 100% (5 of 5) in the genetic and family history group. Specificity was 93.6% (584 of 624) in the personal history group, higher than the genetic and family history group's 86.3% (278 of 322).

The date of original cancer was available for 18 of the 20 malignancies detected by MRI, and 11 of the 18 were detected greater than 5 years after the original cancer.

"Women with a personal history of breast cancer had a lower recall rate, higher positive predictive value, higher cancer yield (although not statistically significant), and higher specificity," said Dr. DeMartini.

Screening breast MRI may therefore be an important adjunct to mammography in women with a personal history of breast cancer, she said. ■



Courtesy Radiological Society of North America

Mammography images of the left breast (top) show no abnormality in a woman with a history of right-breast invasive cancer treated with mastectomy. MRI from the same patient shows a 15-mm mass, which biopsy revealed to be invasive cancer.

VITALS

Major Finding: Women with a personal history of breast cancer should consider an annual screening MRI, despite American Cancer Society guidelines to the contrary.

Data Source: Retrospective review of 1,026 women who received a first screening breast MRI, of whom 973 were screened for genetic and family history of breast cancer. A total of 327 had genetic or family history of breast cancer and 646 had a personal history of breast cancer.

Disclosures: None. According to Dr. DeMartini, the study had no sponsor.

IGF-I Receptor a Target in Triple-Negative Breast Cancer

BY KERRI WACHTER

FROM THE AMERICAN ASSOCIATION FOR CANCER RESEARCH PRESS CONFERENCE

The insulinlike growth factor I receptor may offer a much-needed therapeutic target for triple-negative breast cancer, which can be notoriously hard to treat.

High levels of insulinlike growth factor I receptor (IGF-IR) expression appear to enhance survival for a subset of patients with this type of cancer, based on the results of a small study.

"In triple-negative breast cancer patients younger than 55, high expression is associated with longer survival," Dr. Agneiszka W. Witkiewicz said during a press briefing sponsored by the American Association for Cancer Research (AACR).

Unlike hormone receptor–positive or HER2-positive breast cancers, triple-negative breast cancer has lacked a drug target and is managed with conventional chemotherapy. While triple-negative breast cancer accounts for only 15%-20% of breast cancer cases, it results in half of all breast cancer deaths, said Dr. Witkiewicz, a pathologist at Thomas Jefferson University in Philadelphia and an investigator on the study.

Tissue was evaluated from 99 women with triple-negative breast cancer. The samples were stained with anti-IGF-IR antibody (Ventana Medical Systems Inc.), and scored for IGF-IR protein expression according to standardized criteria originally developed to assess HER2 expression. Patients were stratified as high expression (a score of 3) or low expression (scores 0-2).

In all, 29% of patients had high IGF-IR expression – which was significantly correlated with negative lymph nodes. In patients older than 55 years, there was no survival difference between those with low and high IGF-IR expression.

IGF-IR belongs to the large class of tyrosine kinase receptors that appear to control proliferation and apoptosis in tumors, and may play a role in resistance to chemotherapy.

The study was presented in Denver as a poster at the AACR's International Conference on Molecular Diagnostics in Cancer Therapeutic Development.

One of the coauthors is employed by Ventana Medical Systems, which makes an anti-IGF1-R antibody and is developing an IGF-IR probe. ■