Both breast magnetic resonance imaging (MRI) and mammography are essential for the early detection of breast cancer in women who survived Hodgkin's lymphoma and received radiation treatment at a young age, a prospective study has confirmed.

The results were published online April 22 in the *Journal of Clinical Oncology*.

"Either screening modality alone missed cases of early breast malignancies, but the 2 tests complemented each other in the detection of very early breast malignancies," lead author Andrea K. Ng, MD, from Harvard Medical School, Boston, Massachusetts, told *Medscape Medical News*.

"Early detection in this population is especially important because their breast cancer treatment options can be more limited because of their previous cancer treatment. Women at risk for radiation-related breast cancer might therefore benefit from screening with both modalities," Dr. Ng said.

The study provides, for the first time, prospective data to support the current guidelines, which recommend breast MRI in addition to mammography to screen for breast cancer in female cancer survivors who received chest irradiation before the age of 35. The recommendations were based on extrapolation of data from genetically predisposed women, Dr. Ng explained.

However, this surveillance with both modalities applies only to a select group of patients — those at high risk because of the radiation they received, she and her colleagues note.

Although the study confirms current guideline recommendations, one caveat should be noted, Dr. Ng said.

"Our study recruited women treated years ago, when larger radiation fields and higher doses were employed. The median radiation dose then was 40 Gy. Current standard radiation fields for Hodgkin's lymphoma are much more limited; we now use doses of 20 to 30 Gy," Dr. Ng said.

"While the results of this study may apply to long-term survivors who received historic treatment approaches, the applicability to women treated with modern approaches is not clear because of their lower expected breast cancer risks," she noted.

**Three Criteria Must Be Met Before Guidelines Apply**

In an interview with *Medscape Medical News*, Joachim Yahalom, MD, author of an accompanying editorial, who is from the Memorial Sloan-Kettering Cancer Center in New York City, raised the same caveat, but added that such high doses of radiation are practically a thing of the past.

"Now, it's almost a rarity. Once we learned that there is a concern and that you don't have to treat all of the areas that are not involved with lymphoma, we stopped giving prophylactic radiation; chemotherapy acts as the prophylaxis," he explained. "The radiation field is much smaller and the breast can be pulled out of the radiation field."

Dr. Yahalom stressed that these breast cancer screening guidelines apply only to women
Yahalom who received radiation to the chest when they were 35 years or younger and who are at least 8 years beyond treatment.

"Not everybody is high risk.... The commitment to such screening could be lifelong, with expenses and anxiety that are not justified, so you have to know which patients to select for dual modality screening," he emphasized.

When breast cancer is detected early in these women, the outcome is generally good. However, options for breast conservation are limited, he noted.

These women also run the risk of developing cancer in the contralateral breast. "They are a special group; that is why surveillance is so important."

**Study Findings**

Dr. Ng and colleagues enrolled 148 women previously treated with mantle irradiation for Hodgkin's lymphoma when they were 35 years or younger and who were more than 8 years beyond treatment.

The women underwent yearly mammograms and breast MRI during the 3-year study period. Most (89%) of the women received both screening tests on the same day.

In addition to screening, 63 biopsies were performed in 45 (30%) of the women. Of these, 18 (29%) showed a malignancy; 5 were detected with MRI alone, 6 with mammography alone, and 7 with both modalities.

The malignancies detected with MRI alone were in women with heterogeneously dense breasts or scattered dense breasts. The malignancies detected with mammogram alone were all associated with suspicious calcifications.

Mammography and breast MRI had comparable sensitivity in the detection of breast cancer in the study population (68% vs 67%; \( P = 1.0 \)). When both screening modalities were used, the sensitivity increased to 94%.

The specificity was 93% for mammogram, 94% for MRI, and 90% for both.

"The use of both screening modalities allowed the detection of early cases of breast malignancies that would have been missed if either screening test was used alone. They were mostly very early or preinvasive cancers. Only 1 screen-detected case had node-positive disease," Dr. Ng reported.

It was interesting to see that MRI did not have a significantly higher sensitivity than mammography in these Hodgkin's lymphoma survivors. This is in contrast to what has been seen in single-group studies of women with a genetic or familial predisposition for breast cancer, she noted.

"We think this may, in part, be explained by the relatively high proportion of breast malignancy cases associated with calcifications. All 6 cases that were missed on MRI but picked up on mammogram were associated with the presence of suspicious calcifications or microcalcifications. This could be related to their radiation treatment history," Dr. Ng said.

_The study was supported by an Issues of Cancer Survivorship Research Grant from the Lance Armstrong Foundation and a grant from the Susan G. Komen Foundation. Dr. Ng and Dr. Yahalom have disclosed no relevant financial relationships._

_J Clin Oncol_. Published online April 22, 2013. Abstract, Editorial

Medscape Medical News © 2013 WebMD, LLC