MRI Is More Accurate for Finding Breast Cancers

BY BRUCE K. DIXON
Chicago Bureau

CHICAGO — Magnetic resonance imaging done prior to treatment for breast cancer can reveal cancer missed by mammography and ultrasonography, yielding more accurate information about the extent of disease, according to a poster presented at the annual meeting of the Radiological Society of North America.

"We found almost 29% more cancer by doing the magnetic resonance imaging before surgery or radiation therapy than we thought we had diagnosed with standard mammography, ultrasound, and clinical examination," said Dr. Gillian Newstead of the University of Chicago in an interview. Identifying more cancer up front will influence the course of treatment and ideally produce a more positive long-term outcome, she said.

The researchers classified newly diagnosed breast cancers in 140 women (mean age 56.5 years), of which 53.5% were invasive ductal carcinoma (IDC) with extensive intraductal component (EIC). Additional lesions identified by MRI in 40 women included 26 in the same quadrant, 11 in a different quadrant, and 3 in the contralateral breast. Specifically, 23 of the lesions were identified as IDC with EIC, 6 as IDC, 6 as ductal carcinoma in situ, and 5 as invasive lobular cancer.

Clinical management was changed in 31 of the 40 women: 20 underwent more extensive surgery, 8 were converted from breast conservation to mastectomy, and 3 were given additional neoadjuvant chemotherapy.

Although mammography and ultrasonography are still the primary imaging methods for breast cancer screening and diagnosis, the higher soft tissue contrast and gadolinium-enhanced images obtained by MRI improve the sensitivity of detection and allow more accurate evaluation of the cancer. Most breast cancers enhance rapidly after IV injection of contrast agents because of higher vascularity and the angiogenic factors that produce an increase in capillary permeability, changes in osmolar pressure, and expansion of the interstitial space, the investigators said.

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DR. NEWSTEAD

"The MR is looking at the new blood vessel growth, or angiogenesis, in tumors and it's a functional test in that sense, so we see lesions that may not show up on mammograms, especially in dense breasts. And there are some tumors that grow in such a way that makes them more difficult to perceive on a mammogram," Dr. Newstead added.

"Patients underwent imaging in the prone position with the breasts gently immobilized within lateral compression plates. Contrast injection was made with IV administration of 0.1 mmol/kg gadodiamide followed by a 20-mL saline flush at the rate of 2.0 mL per second. MR images were acquired using a 1.5-T scanner with use of a dedicated breast coil," the investigators said. The resolution on the MRI machine was 1.6 mm.

Hospitals have been slow to assimilate MRI into clinical practice because there have been a lot of different techniques proposed by academic centers, Dr. Newstead said. "That's becoming less of an issue as our magnets are getting faster and we don't have to make as many compromises; so I would say that any person with a fairly modern magnet and a modern breast coil should be able to achieve satisfactory resolution both spatially and temporally," she said.

MRI has found a home at the University of Chicago's breast imaging section, not only for pretreatment assessment but also to detect cancer recurrence post treatment and to screen high-risk women.

"Early detection of local recurrence improves long-term survival, but postoperative mammographic and ultrasound evaluation often is limited, especially in patients with dense, fibroglandular tissue and postsurgical or postradiation fibrosis," the authors wrote, noting that residual or recurrent tumor exhibits early enhancement.

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VTE Risk Tied to Metastatic Disease in Breast Ca

BY BRUCE JANCIN
Denver Bureau

SAN ANTONIO — The incidence of venous thromboembolism in the year following breast cancer diagnosis is roughly 1%, Dr. Helen K. Chew reported at a breast cancer symposium sponsored by the Cancer Therapy and Research Center.

That's a lower figure than previously reported in some clinical trials. But the trials typically feature lengthy exclusion criteria and involve hundreds of patients, whereas Dr. Chew's data carry the authority of big numbers: to be exact, all 108,255 women with breast cancer diagnosed in California during a 4-year period and followed through the California Cancer Registry and California Patient Discharge Data set.

By far the strongest predictor of venous thromboembolism (VTE) in this cohort was the presence of metastatic disease at breast cancer diagnosis. It was associated with a 6.3-fold increased risk, compared with patients who had localized cancer, said Dr. Chew, director of the breast cancer program at the University of California, Davis, cancer center.

The incidence of VTE was 0.6% in the first 6 months following breast cancer diagnosis and a cumulative 0.9% at the 12-month mark. It fell off thereafter such that the cumulative 2-year incidence was 1.2%.

In a multivariate analysis, regional disease at the time of breast cancer diagnosis—present in 31% of patients—was associated with a 2.2-fold increased risk of subsequent VTE, compared with localized disease, which was present in 61% of the women. Women age 65 or older had an 80% greater risk than those younger than 45.

The presence of a single comorbidity was associated with a 2.2-fold greater risk of VTE than in women with no comorbid conditions; patients with three comorbid conditions had a 3.3-fold increased risk, compared with those who had none.

Women of Asian heritage were 70% less likely to experience VTE than whites. Patients who underwent major surgery were half as likely to develop VTE as those who didn't, although Dr. Chew suspects the association isn't causal and more likely reflects localized disease and overall good health. "Patients with metastatic disease generally wouldn't undergo breast cancer surgery," she noted.

Breast cancer histology wasn't predictive of VTE risk. ■

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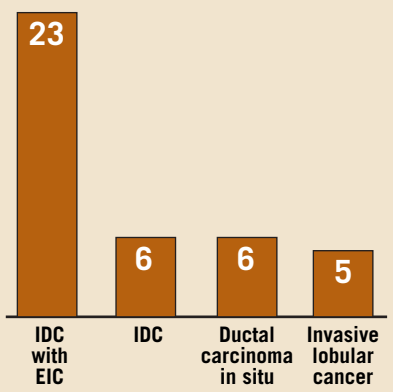
"MR is a sensitive modality for detection of early recurrent tumor, and breast cancer recurrence must be differentiated from acute and subacute posttreatment changes. Most recurrent tumor, unlike unrecognized residual tumor, usually presents at least 2 years following breast conservation treatment. Normal parenchymal enhancement usually is diminished after breast irradiation. Recurrent tumor may therefore be readily visible in the postradiation breast," they said.

False-positive findings are not a problem with high-resolution MRI and correct procedure, according to Dr. Newstead. "When we find something on MR that wasn't seen before on mammography or ultrasound, typically we'll bring the patient back for a repeat ultrasound and mammogram. If we see something, we'll do a biopsy right then. But if we can't find anything [with conventional imaging]—which happens in about 40% of our cases—and MR is the only finding, then we'll bring the patient back and repeat the MRI study. If it still looks worrisome, we'll go ahead and biopsy at the same time, so she only has to come back once," Dr. Newstead explained. ■

Additional Lesions Found by MRI



Note: Based on MRI in 40 women.
Source: Dr. Newstead

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