Forewarned Is Forearmed: Can Better Patient Counseling Increase MRI Utilization in High-Risk Women?

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The American Cancer Society, National Comprehensive Cancer Network, American Society of Breast Surgeons, and American College of Radiology (ACR)^{1–5} recommend supplemental breast cancer screening with magnetic resonance imaging (MRI) for high-risk women, defined as having $\geq 20\%$ lifetime risk of breast cancer.^{6–8}

Although dependent on technical factors, clinical indications, and radiologist experience, the high sensitivity of MRI makes it a useful screening modality.⁹ Its sensitivity is 70–100% in high-risk populations, notably better than that of mammography alone.^{6,7, 9, 10} MRI detects cancers earlier, when they are smaller and node negative—and thus lower stage—and it is especially good at identifying aggressive invasive cancers.^{5,8,11–15} Many MRI-detected cancers are still mammographically occult,^{8,10} so incorporation of screening MRI may reduce the interval cancer rate to $< 1\%$.^{6,7}

Despite these advantages, only a minority of eligible women undergo screening MRI. Even among mutation carriers, uptake rates are low.^{6, 16–18} So why are not more high-risk women pursuing MRI?

MRI has well-described drawbacks: first, screening MRI does not clearly improve mortality;⁶ it is expensive and may be physically uncomfortable; some patients are concerned about cumulative gadolinium exposure and deposition;¹⁹ and finally, specificity is lower than that of mammography, and high-risk patients may already be

anxious about developing breast cancer, with any false positives and subsequent tests possibly heightening that anxiety.

In this issue, Coopey et al. review a cohort of patients from their high-risk breast clinic.²⁰ They identified women with lifetime risk $\geq 20\%$ using the Gail and Tyrer–Cuzick models, excluding those with known germline mutations. Patients in this dedicated clinic had excellent uptake of screening MRI: two-thirds of the 282 patients evaluated during the clinic’s first year pursued the recommended MRI.

Like other investigators, however, Coopey et al. note the low specificity of MRI. Almost a quarter of their patients required further evaluation of MRI findings with additional imaging and/or biopsy. As in other studies, most of these MRI findings were benign on core biopsy and not clinically actionable.^{9,20}

Interestingly, Coopey et al. identified only two new breast cancers with MRI, equaling a cancer detection rate of 1%. In literature, cancer detection rates with screening MRI range from 0.8% to 39%,^{10–12,17} with variability due to study indication and underlying patient risk. Several investigators, for instance, report better cancer yield in women with genetic predisposition, high-risk lesions, or a personal history of breast cancer, compared with patients whose lifetime risk is $\geq 20\%$ only because of a modest family cancer history.^{7,9,17,21} As the authors note, further study of this topic can outline which patient populations will benefit most from screening MRI.

As patients accumulate more MRI’s over time, comparisons can be made with prior studies, which improves accuracy⁹ and the false-positive rate.^{12,22} Specificity can be further optimized by performing the MRI during days 7–14 of a premenopausal patient’s cycle, which reduces background enhancement.^{8,9}

Screening breast MRI is unanimously recommended for high-risk women, so we should encourage its use. It is especially important for younger women and women with genetic predisposition to cancer.^{23–27} In fact, the ACR offers annual MRI alone as an alternative to MRI plus mammography for *BRCA1* carriers under age 40!^{5,23,27}

We agree wholeheartedly with the authors on the importance of counseling patients that false positives are common, especially on first MRIs.^{20,21} Patients can be reassured that callbacks become less common with additional rounds of screening. Forewarned is forearmed, and appropriate counseling can minimize patient anxiety and improve patient acceptance of screening breast MRI.

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