Ann Surg Oncol (2023) 30:6–7
https://doi.org/10.1245/s10434-022-12603-z

Annals of
SURGICAL ONCOLOGY
OFFICIAL JOURNAL OF THE SOCIETY OF SURGICAL ONCOLOGY

EDITORIAL – BREAST ONCOLOGY

Screening MRI in Patients with High-Risk Breast Lesions: More May Not Necessarily be More

Juan C. Paramo, MD[1], and Roshni Rao, MD[2]

[1]Columbia University Division of Surgical Oncology at Mount Sinai Medical Center, Mount Sinai Medical Center, Miami Beach, FL; [2]Division of Breast Surgical Oncology, Department of Surgery, Columbia University Medical Center, New York, NY

The ability to image breast tissue is fortuitously multimodal. Mammographic screening has been proven to decrease breast cancer mortality,[1] and although there remains controversy over optimal frequency and age of initiation, this modality is universally endorsed as an effective tool for identifying cancers at an earlier stage.[2] Whereas magnetic resonance imaging (MRI) of the breast has the highest cancer detection rate of all breast imaging modalities,[3] the rate of false positives and potentially unnecessary biopsies precludes its use as a widespread screening tool. Surveillance with MRI is therefore indicated primarily for patients who are at such elevated breast cancer risk that the risk of false-positive biopsies is outweighed by the benefits of potential early detection.[4]

Given the established clinical pathways for high risk versus average risk, a lack of clarity exists for those patients who do not clearly fit the high-risk criteria but may potentially be at above-average risk due to a history of high-risk pathologies. It is in this space where Laws[5] focuses her research, an area where even among experts within an academic medical center there is variation in practice patterns.

In the current issue of *Annals of Surgical Oncology*, the authors[5] present a most pertinent question—what is the additive clinical value of surveillance MRI in patients with a history of atypical ductal hyperplasia (ADH), atypical lobular hyperplasia (ALH), and lobular carcinoma in situ (LCIS)? The authors report on 699 patients followed in a high-risk clinic due to a history of the aforementioned high-risk lesions. Based on clinician practice patterns, 540 patients (77%) underwent mammographic screening alone and 129 (23%) received MRIs in addition to the mammograms (MMGs). At a median follow-up of 25 months, 13 cancers were diagnosed—8 in the MMG group and 5 in the MMG/MRI group. Three of the cancers in the MRI/MMG group were identified via mammography, leaving only two cancers that were diagnosed only via MRI. Subsequently, multivariable logistic regression generated a propensity score to which inverse probability weighting was applied to determine that at 4 years, the rate of cancer detection was equivalent between the two screening groups. However, the MMG/MRI screening clearly lead to more biopsies (31–34% with MRI vs. 12–13% via MMG). Of note, ultrasound screening was not routinely offered within this clinic, which may be different from some literature-supported practice patterns[6–8] (including the authors of this editorial). We applaud the authors on this well done, clinically important topic, which brings to the forefront the concepts of de-escalation, personalized screening, and shared decision making.

DE-ESCALATION

In addition to the de-escalation of therapies that impact oncologic outcomes,[9] it is important to consider de-escalation of screening that may cause harm. Just as in the general population, the potential concern in patients with high-risk lesions is that de-escalation of screening may cause harm because of a decrease in the detection rate; the current study[5] challenges this notion and, furthermore,

First Received: 12 September 2022
Accepted: 13 September 2022
Published Online: 25 September 2022

R. Rao, MD
e-mail: rr3181@cumc.columbia.edu

points out the clear harm of false-positive biopsies that were significantly more pronounced in the MRI/MMG group.

PERSONALIZED SCREENING

It is unclear how breast cancer risk calculators were utilized by clinicians in this high-risk clinic to determine the addition of MRI to screening,[5] and whether patients who were at the higher end of the continuum (i.e. 18% lifetime risk) were more likely to undergo MRI. This is however exactly the research that needs to be performed to more carefully stratify risk in order to place patients in the most appropriate categories, which are certainly more nuanced than the current high risk versus average risk.

Personalized screening is a balancing act of truly choosing wisely. This incorporates cost versus benefit with the goal of not missing a malignant diagnosis that could alter life expectancy. We look forward to the results of trials such as WISDOM[10] (Women Informed to Screen Depending on Measures of Risk), which may provide us some of the guidance needed.

SHARED DECISION MAKING

The concept of shared decision making—what if patients are willing to accept a higher rate of biopsies associated with closer screening, but do not want to run the risk of missing a cancer and in fact find reassurance in increased screening?

Although patient input is fundamental in decision making, it is something that is not easy to quantify or define and may be impacted by how information is presented to the patient. There is an intrinsic selection bias regarding who ultimately was recommended to undergo and was compliant with MRI screening. This was recognized by the authors and explains why MRI was utilized more often in patients who were younger (median age 51 vs. 55 years, $p < 0.001$), and those with extremely dense breasts (25% vs. 10%, $p < 0.001$), stronger family history of breast cancer (24% vs. 16%, $p = 0.02$), and history of LCIS versus ADH/ALH (28% vs. 21%, $p = 0.05$).[5]

At the end of the day, the question of which population really benefits is something that we still do not know for sure, and as with all good manuscripts, there are now more questions to answer.

DISCLOSURES Juan C. Paramo and Roshni Rao declare no conflicts of interest.

REFERENCES

1. Bevers TB, Helvie M, Bonaccio E, et al. Breast cancer screening and diagnosis, version 3.2018, NCCN clinical practice guidelines in oncology. *J Natl Compr Canc Netw*. 2018;16(11):1362–9. https://doi.org/10.6004/jnccn.2018.0083.
2. Monticciolo DL, Malak SF, Friedewald SM, et al. Breast cancer screening recommendations inclusive of all women at average risk: update from the ACR and society of breast imaging. *J Am Coll Radiol*. 2021;18(9):1280–8. https://doi.org/10.1016/j.jacr.2021.04.021.
3. Mann RM, Cho N, Moy L. Breast MRI: state of the art. *Radiology*. 2019;292(3):520–36. https://doi.org/10.1148/radiol.2019182947.
4. Houser M, Barreto D, Mehta A, Brem RF. Current and future directions of breast MRI. *J Clin Med*. 2021. https://doi.org/10.3390/jcm10235668.
5. Laws A, Katlin F, Hans M, et al. Screening MRI does not increase cancer detection or result in an earlier stage at diagnosis for patients with high-risk breast lesions: a propensity score analysis. *Ann Surg Oncol*. 2022. https://doi.org/10.1245/s10434-022-12568-z.
6. Kaplan SS. Clinical utility of bilateral whole-breast US in the evaluation of women with dense breast tissue. *Radiology*. 2001;221(3):641–9. https://doi.org/10.1148/radiol.2213010364.
7. Berg WA, Blume JD, Cormack JB, et al. Combined screening with ultrasound and mammography vs mammography alone in women at elevated risk of breast cancer. *JAMA*. 2008;299(18):2151–63. https://doi.org/10.1001/jama.299.18.2151.
8. Berg WA, Zhang Z, Lehrer D, et al. Detection of breast cancer with addition of annual screening ultrasound or a single screening MRI to mammography in women with elevated breast cancer risk. *JAMA*. 2012;307(13):1394–404. https://doi.org/10.1001/jama.2012.388.
9. Sacchini V, Norton L. Escalating de-escalation in breast cancer treatment. *Breast Cancer Res Treat*. 2022;195(2):85–90. https://doi.org/10.1007/s10549-022-06685-2.
10. Esserman L, Eklund M, Veer LV, et al. The WISDOM study: a new approach to screening can and should be tested. *Breast Cancer Res Treat*. 2021;189(3):593–8. https://doi.org/10.1007/s10549-021-06346-w.