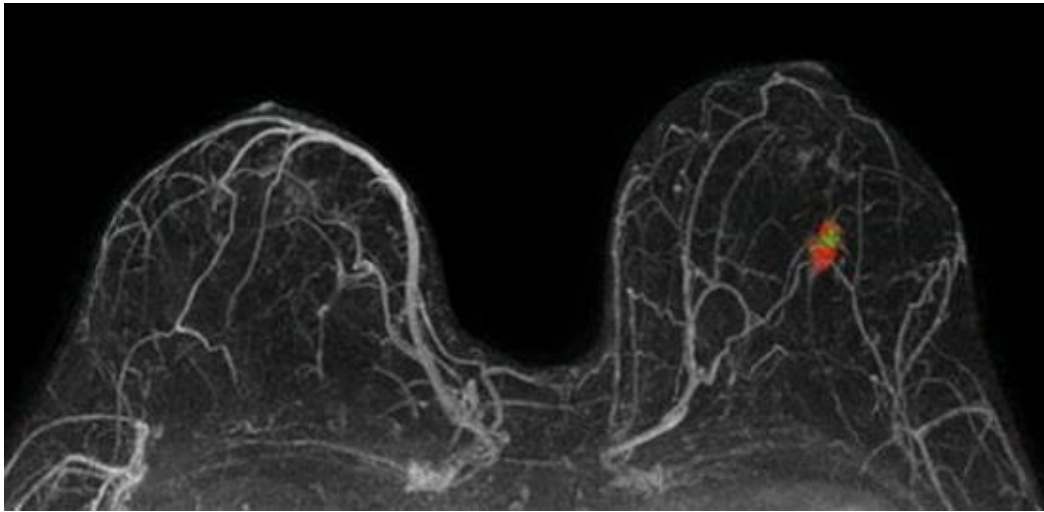


Breast cancer survivor? MRI screening offers benefits.

February 14, 2016

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Shown is a 2cm breast cancer detected on MRI screening in a 63 year old woman with personal history of cancer (treated for invasive breast cancer 19 years earlier). Her screening mammogram was negative.

Image provided by Dr. Savannah Partridge.

Current guidelines from the American Cancer Society (ACS) and National Comprehensive Cancer Network (NCCN) recommend annual breast MRI screening (along with mammography) for women who are carriers or have first-degree relatives with BRCA or other cancer susceptibility genetic mutations, who have a greater than 20-25% lifetime risk of developing breast cancer based on family history, or who have had radiation to the chest. Recommendations for these individuals stem from studies in which MRI added to mammography resulted in an increased rate of identifying invasive breast cancer without an unacceptable increase in unnecessary follow up procedures, including biopsies.

Women with a personal history of breast cancer also have an elevated risk of future breast cancer events. However, for these women, the American Society of Clinical Oncology (ASCO) recommends against MRI screening, while the ACS and NCCN give no recommendations. A recent study led by Dr. Janie Lee, one of the co-authors of this study and Section Chief of Breast Imaging for University of Washington and Seattle Cancer Care Alliance (SCCA), showed that some breast cancer survivors are at higher risk of developing second breast cancers that are missed on screening mammography

and that these women may benefit from more intensive screening with a test like MRI after completing their treatment ([Lee JM et al. JNCI 2015](#)). However, there is insufficient evidence supporting MRI's use in this specific patient population and there exist concerns of morbidity and costs associated with additional imaging or biopsy of benign lesions identified as suspicious by MRI.

To address these scientific gaps, Drs. Constance Lehman, Savannah Partridge, Janie Lee, and colleagues assessed the diagnostic performance of MRI screening of women with a personal history (PH) of treated breast cancer vs. those with a genetic or family history of breast cancer (GFH). They presented their results recently in *Journal of the National Cancer Institute*.

The researchers used case-series registry data, collected at time of MRI and at 12-month follow-up, from the Consortium Oncology Data Integration Project, a board-approved solid tumor clinical database developed and maintained by the Fred Hutchinson Cancer Research Center in collaboration with the University of Washington. After satisfying inclusion and exclusion criteria, 1,521 women 18 years and older underwent MRI for the sole clinical indication of screening from July 2004 to November 2011. Of these women, 915 had PH and 606 had GFH of breast cancer; 64 women with PH and GFH were included in the GFH group.

Compared to those with GFH, women in the PH group: were more likely to have had a prior breast MRI (54% vs. 21%, $P < 0.001$), had lower recall rates and biopsy recommendations (14% vs. 24% and 8% vs. 16%, $P < 0.001$ respectively), had lower false-positive MRI rates (12% vs. 22%, $P < 0.001$), and had higher MRI specificity (94% vs. 86%, $P < 0.001$). Cancer detection rates and sensitivity of the MRI did not differ between the PH and GFH groups. To further explore, why the PH group had lower false-positive rates, the researchers conducted a logistic regression analysis and found older age, history of prior breast MRI, and clinical indication of PH (vs. GFH) were all individually associated with a women's decreased risk for a false-positive interpretation on an MRI screening; however when these factors were combined in a multivariable model, only age and prior MRI remained statistically significant. One explanation for the finding of lower false-positive rates in PH patients is that a prior MRI serves as a comparison MRI. Another explanation is that the treatment in the PH patient (whether mastectomy, radiation, or hormonal therapy) could render the MRI easier to interpret.

Dr. Lehman, currently the Division Chief of Breast Imaging, Massachusetts General Hospital, describes the importance of the findings of this study: "the challenge to date has been that while women with a personal history of breast cancer are at increased risk for a future breast cancer diagnosis, the majority of research on screening MRI was performed in women at high risk based on family or genetic history, not personal history. Our study shows that MRI detects as many cancers in

women with a personal history as it does in high risk women, suggesting that breast cancer survivors are another group of women that may benefit from screening MRI."

According to Dr. Lee, future research directions involve identifying "which women to screen with breast MRI □ based on factors related to a woman's clinical history, first tumor biology, treatment choices and imaging characteristics. At the SCCA, we are also investigating other new screening technologies that can complement mammography to identify cancers earlier. Detecting second breast cancers earlier while minimizing the potential harms of additional screening will help breast cancer survivors live longer, healthier lives."

[Lehman CD, Lee JM, DeMartini WB, Hippe DS, Rendi MH, Kalish G, Porter P, Gralow J, Partridge SC](#). 2016. Screening MRI in Women With a Personal History of Breast Cancer. *J Natl Cancer Inst*. 108(3):1-8. doi: 10.1093/jnci/djv349.

Funding for this study was provided by the National Institutes of Health and the National Cancer Institute.