

Breast composition is an important factor in managing breast-cancer risk



Breast density has recently emerged as an important factor in determining a woman's risk of breast cancer. Studies suggest women with dense breasts have a four- to six-fold increased risk of developing breast cancer. However, many questions remain about the magnitude of the risk, the biological mechanisms at play in dense breast tissue and how to best advise women with dense breasts regarding screening.

The breast is composed of fat and glandular tissue. The higher the proportion of glandular tissue, the denser the breast. Density is determined by how the breast tissue appears on a mammogram, not by palpation. Approximately 40 percent of women over the age of 40 have dense breast tissue by mammography.

Tomosynthesis can improve cancer detection rate

Older film mammograms are limited in their ability to distinguish normal dense breast tissue and cancer tissue, as both appear white while fatty tissue appears dark. In the general population, about 10 percent of breast cancers are missed by standard mammography, and having extremely dense breast tissue on its own almost doubles the 10-year risk of breast cancer in the average 50-year-old woman.

Sharing information and decisions with patients

It's important for women to know if they have dense breast tissue, says Deanna J. Attai, MD, assistant clinical professor of surgery at the David Geffen School of Medicine at UCLA, and president of the American Society of Breast Surgeons.

"We should have a conversation with all of our patients looking at family history, age, weight, whether they use hormones, breast density and other factors we know can contribute to their risk of breast cancer," she says. "We are in an era of shared decision-making."

Patients with dense breasts should be counseled that enhanced imaging, such as with tomosynthesis or ultrasound, while useful, can turn up subtle characteristics that might look suspicious but may be harmless, thus leading to unnecessary treatment.

"I think it's important that physicians have a discussion with women about the potential downside of picking up every little thing," she says. "We may be finding lesions that will never be of any significance to the patient."

Tomosynthesis, or 3-D mammography, can improve the rate of invasive breast-cancer detection in women with dense breast tissue by producing a series of detailed images of the breast at 1-millimeter intervals. The amount of radiation exposure is slightly higher with tomosynthesis compared to film mammography, and insurance may not cover this form of imaging.

MRI and ultrasound, including automated whole-breast ultrasound, can be useful and may be recommended for evaluating women with very dense breast tissue. There are no formal guidelines from either the American College of Radiology or the American Cancer Society regarding breast imaging for women with dense breast tissue unless the woman is also considered to be at high-risk for breast cancer, such as those with a strong family history of the disease.

Moreover, while radiologists may be able to detect smaller lesions with these newer imaging techniques, some experts have expressed concern about over-diagnosis and over-treatment of lesions that may never be of any significance to the patient. The potential benefits of enhanced screening should be weighed against the risk of over-treatment.

Dense tissue associated with higher cancer risk

The difficulty in advising women with dense breasts on breast-cancer screening is compounded by the fact that dense breast tissue is linked to a higher risk of breast cancer. The biological mechanisms that contribute to the increased risk are not well understood and are the subject of ongoing research. Younger women naturally have denser breast tissue. However the risk of breast cancer increases with age. Research has yet to clarify when the increased risk relating to breast density develops.

Screening advice for women with dense breasts

Because breast-tissue density can be determined only on mammography, a woman with dense breast tissue can be unaware of her breast makeup and the associated risks. Under federal law, a radiologist is required to make a comment regarding breast density in his or her report to the physician. Several states, including California, have passed legislation requiring that patients also be informed of their breast density. The information is intended to raise awareness about breast density as a risk factor for breast cancer and encourage conversations between physicians and patients on whether a patient might benefit from additional screening.

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