

Adding Ultrasound to Mammography May Improve Breast Cancer Detection in High-Risk Women

The addition of an ultrasound examination to mammography for women at high-risk of breast cancer resulted in a higher rate of cancer detection, but also increased the number of false-positive results, according to a study in the *Journal of the American Medical Association*.

Supplemental screening ultrasound has the potential of depicting small, node-negative breast cancers (when there is no cancer in the lymph nodes) not seen on mammography, according to background information in the article.

Wendie A. Berg, M.D., Ph.D., of the American Radiology Services Inc., Johns Hopkins Green Spring, Lutherville, Md., and colleagues conducted a study to compare the diagnostic effectiveness of screening breast mammography plus ultrasound vs. mammography alone in women at increased risk of breast cancer. The study included 2,809 women with dense breast tissue who were randomized to undergo mammographic and ultrasonographic examinations.

Forty participants (41 breast lesions) were diagnosed with cancer: 8 suspicious on both ultrasound and mammography; 12 on ultrasound alone; 12 on mammography alone; and 8 participants (involving 9 breast lesions) on neither.

The diagnostic yield for mammography was 7.6 cancers per 1,000 women screened (20/2,637); 31 cancers were diagnosed in 2,637 participants by the combination of mammography plus ultrasound, producing a yield of 11.8 per 1,000 women, and an increased yield due to ultrasound of 4.2 per 1,000 over mammography alone (or an additional 1.1 to 7.2 cancers per 1,000 high-risk women).

The diagnostic accuracy of mammography was 0.78; for ultrasound, 0.80; and for combined mammography plus ultrasound, 0.91. The positive predictive value of biopsy recommendation after full diagnostic workup was 19 of 84 for mammography (22.6 percent), 21 of 235 for ultrasound (8.9 percent), and 31 of 276 for combined mammography plus ultrasound (11.2 percent).

The false-positive rate for mammography was 4.4 percent; for ultrasound, 8.1 percent; and for combined mammography plus ultrasound, 10.4 percent.

"The detection benefit of a single screening ultrasound in women at elevated risk of breast cancer is now well validated. However, it comes with a substantial risk of false-positive results (i.e., biopsy with benign results and/or short interval follow-up). Our results should be interpreted in the context of recent guidelines recommending annual magnetic resonance imaging [MRI] in women at very high risk of breast cancer," the authors conclude.

In an accompanying editorial, Christiane K. Kuhl, M.D., of the University of Bonn, Germany, comments on the findings of Berg and colleagues.

"Mammography will probably remain the basis for breast cancer screening for the foreseeable future. However, increasing evidence suggests that for many women, mammography does not provide the best possible accuracy. Early diagnosis is important and has been the single major reason for improved breast cancer survival rates. Notwithstanding this success, a success mainly credited to mammographic screening, there is good reason to move on. As long as breast cancer remains the most common cause of cancer death in women, the search for techniques that can help cover the limitations of screening mammography must continue."

"The concept of mammographic screening has been in use for more than 40 years. It may now be time to carefully reconsider. Individualized screening schemes tailored to the individual risk and to the personal preferences of a woman may be the way to consider how to screen for breast cancer. Whether in the long run, ultrasound or breast MRI will be more appropriate for this purpose remains to be seen."

SOURCE:

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