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NEWS

RSNA Press Release

Screening Mammograms Are Less Accurate in Women with Dense Breasts

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Ultrasound finds small cancers in women with dense breasts and normal mammograms

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Media Advisory: To contact Thomas M. Kolb, M.D., call Marijo Millette Zerfoss 630/590-7727. On the day of the briefing, call the AMA's Science News Department at 312/464-2410.

The following study was presented on September 19, 2002 at the American Medical Association's 21st annual Science Reporters Conference in Washington, D.C. The press release was distributed by the AMA Science News Department.

WASHINGTON - While mammography remains the most important breast cancer screening technique, supplementing mammography with ultrasound markedly increases cancer detection in women with dense breasts according to an article in the October 2002 issue of *Radiology.*

Thomas M. Kolb, M.D., a New York City radiologist and his co-authors report the results of 27,825 consecutive individual screening sessions performed on 11,130 women who had no signs or symptoms of breast cancer when they enrolled in the study. Each screening session consisted of mammography followed by clinical breast examination for all women. Women with dense breasts (49 percent of all women) were additionally screened with a complete bilateral ultrasound examination.

During the course of the study 246 cancers were diagnosed in 221 women. In those with dense breasts, mammography alone detected 9 percent of invasive cancers while physical examination (PE) alone found only 3 percent. The additional screening ultrasound increased the number of women diagnosed with non-palpable, invasive cancers by 42 percent (44 percent of all cancers) with a false positive rate for biopsy (those biopsied without cancer being found) of only 2.4 percent.

"The current standard of care is to screen all women identically with a mammogram and clinical breast examination," said Dr. Kolb. "However our research showed important differences in mammographic sensitivity within certain subgroups of women. While mammography detected 98 percent of cancers in women with fatty breasts it found only 48 percent in women with the densest breasts. The large number of cancers found only by ultrasound in these women were small (70 percent were smaller than 1cm.) and 90 percent

were node negative, thus conferring the best prognosis and the widest range of treatment options."

Dr. Kolb spoke today at the American Medical Association's 21st annual Science Reporters Conference in Washington.

The study is unique in that a combination of three contemporaneous examinations, mammography, ultrasound and PE, were used to screen a large population. The performance of each screening modality among women of differing ages, breast density and hormonal status was calculated. The authors found that breast density is the most important independent predictor of mammographic sensitivity. "As far as how effective a mammogram is for a particular woman, it is more important for that woman to know her breast density than her age," said Dr. Kolb. "Women with dense breasts, and especially those that are at high-risk, should strongly consider having a screening ultrasound as well."

Two thirds of all premenopausal women and half of postmenopausal women taking hormone replacement have dense breasts. More than a quarter of all postmenopausal women not taking hormone replacement therapy have dense breasts. Breast density can only be determined by mammography and not by physical examination or inspection.

A mammogram depicts fat as black and glandular tissue (dense tissue) as white. Therefore a dense breast will produce a predominantly white mammogram. Masses on a mammogram are white and so a small white spot that may be cancerous may go undetected. Conversely ultrasound depicts most cancers as a black spot, which is easier to detect in a background of dense, white tissue.

"It is important for women with dense breasts to have a mammogram before proceeding to ultrasound. It is the combination of mammography plus ultrasound that is most effective. Ultrasound does not replace the mammogram," said Dr. Kolb.

When compared with clinical breast examination, screening ultrasound alone also found significantly more cancers. The authors calculated that, in addition to mammography for those with dense breasts, if ultrasound were substituted for physical examination, cancer detection would increase from 74 percent to 97 percent. The authors cautioned that while physical examination was the least helpful of the three tests for detecting cancer there should be no changes to the current screening guidelines until additional studies confirm their findings.

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Editor's Note: Dr. Kolb has no financial interests, arrangements, nor affiliations that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation to disclose. He has received an honorarium from the American Medical Association to speak at this briefing.