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Ultrasound: Improving Breast Cancer Detection

ULTRASOUND AS A MODALITY TO IMPROVE EARLY DETECTION OF BREAST CANCER.

You are listening to ReachMD XM 157, The Channel for Medical Professionals. Welcome to Advances in Women's Health. Your host is Dr. Lisa Mazullo, Assistant Professor of Obstetrics and Gynecology at Northwestern University Medical School, the Feinberg School of Medicine.

You are listening to ReachMD XM 157, the channel for medical professionals. A 178,000 new cases of breast cancer are diagnosed annually and 40,000 women die yearly from breast cancer. The ability to detect breast cancer earlier and of greater accuracy holds the most great importance for women's health. Welcome to Advances in Women's Health. I am Dr. Lisa Mazullo, your host and with me today is Dr. Wendy Berg who is the Researcher and Clinical Radiologist affiliated to John Hopkins Institutions in Baltimore, who is the co-author of a study that is looking at ultrasound as a modality for improved breast cancer screening and to increase early detection of breast cancer.

Dr. MAZULLO:

So, just to go over some things before we realize why you needed to do this study, what do you think the accuracy is currently of traditional mammography in its pickup for breast cancer?

Dr. BERG:

Oh, that is the one question on everyone's mind. I think to some degree it actually depends on how dense the breast tissue is and it's an issue that I am sure we will discuss in greater detail. If the patient has a very fatty breast, it's very easy for mammography to see things. It is probably at least 98% of the time able to see the cancer if it is present. If the tissue is very dense and by that we mean very white in its appearance then it is much more likely for the cancer to be hidden by that tissue and in that situation we probably see somewhere between 40 and 60% depending on how you define _____.

Dr. MAZULLO:

When you looking any new imaging modality to help make those numbers even more impressive, what are the salient points to look at before it can become a tool in our imaging armamentarium?

Dr. BERG:

Well, there are several issues. So, when we talk about screening, we are talking about women who are healthy and one of the things that we don't want to do is cause a lot of unnecessary anxiety or problems in terms of tolerating a test if it is going to be used for screening, so for a test should be helpful to us, it has to be something that is relatively widely available and it has to be something that can be easily performed and tolerated by the patient without causing a lot of pain or other complications and finally, we really can't be finding a lot of things that are not cancer that raise concern or they have, they cause side effects if you will in the course of trying to find the true cancers that are present.

Dr. MAZULLO:

So trying to find something that doesn't have a lot of false positives?

Dr. BERG:

Yes, that is an issue and it again depends on how problematic it is if we find something how hard is it to address that. With breast cancer, we do have the advantage that there are many relatively easy ways to perform needle biopsies these days, it no longer requires going through surgery if we find something that is concerning. Most of the time, we are able to do a simple office procedure that takes 15 to 20 minutes to make a diagnosis in terms of getting the tissue samples, and it is a pretty straightforward procedure. So, false positive is still an issue with any imaging tests but they are less of an issue now than they were 15 years ago.

Dr. MAZULLO:

Before we get into more specifics about ultrasound, digital or computer aided detection seems to be a very hot change for mammography and can you comment a little bit if you think that digital mammography is a significant improvement or has it really helped in the detection of early breast cancer?

Dr. BERG:

Right. So, there are two big studies that have really looked at this issue and the one that was performed in the United States <____> trial that Dr._____ at University of North Carolina did show that digital mammography had better performance in women who were under 50 years of age or premenopausal or had dense breasts, and those were of course overlapping groups of women. The younger women tend to have denser breast tissue and we found in that study that about 70% sensitivity for cancers with digital mammography compared to only about 55% with some screen, but they only were using mammography itself to define false negative that probably underestimates some of the misses that it still is clearly better than some screen and certainly at this point, we would encourage any woman who has dense breast tissue to have her mammogram performed, you think digital mammography wherever possible.

Dr. MAZULLO:

Do you think there is any disadvantage to using digital mammography?

Dr. BERG:

I don't. From a practical standpoint it seems to help us see things better and more confidently, though there is probably less chance also of an unnecessary repeat test. It is not going to completely avoid those but it does help us. It is easier for the technologist to quickly see her films and assess whether she has got all the tissue and does further things to assess. I think all things considered, it definitely improved our day-to-day performance.

Dr. MAZULLO:

Why did you feel ultrasound was a good modality to evaluate when you were considering a study on improving methods of breast cancer detection?

Dr. BERG:

Well, ultrasound of course is widely available, so it meets the first criterion for a screening test something that is present in every breast imaging center, it is something that of course is available and used widely in obstetrics and gynecology applications and so it certainly is a widely available technology. The technology itself had improved a lot. It had been looked at way back in the 1980s and the results were not very encouraging, but there are transducers and <____> electronics had really improved in the last again 15, 10 to 15 years and we were finding very encouraging results in our own experiences at many centers and there were some single center studies that were published that had very encouraging results with respect to finding small breast cancers that were not seen on mammography and it really was time to see if that technology could be translated to more general practice. It is always great when we find that one particular investigator can get good results, but before we can consider using it more widely, we do need to demonstrate that the same approach can be used in many different hands, many different centers, and get similar result and that was really the purpose of our studies.

If you are just joining us, you are listening to Advances in Women's Health on ReachMD XM 157, The Channel for Medical Professionals. I am Dr. Lisa Mazullo and today I am speaking with Dr. Wendy Berg about ultrasound as a modality to improve early detection of breast cancer.

Dr. MAZULLO:

Dr. Berg, who were the patients that were included in the study that you did on this topic?

Dr. BERG:

We selected a group of women who were at somewhat higher risk of developing breast cancer. So, all of our patients had to meet at least one definition of increased risk and over half of them had a personal history of breast cancer. We also had about a quarter of the women who had some sort of prior atypical biopsy, which is a marker of increased risk and some overlap again with the group who had a family history of breast cancer that presented increased risk.

Dr. MAZULLO:

Did you find any subgroups of patients within this that benefitted more or less from the ultrasound aided breast imaging?

Dr. BERG:

Not really. We really didn't include enough women to start looking at subgroups. We can really only draw conclusions for the overall group, was in the end we had 2637 women who completed the initial scans as well as the 12-month followup.

Dr. MAZULLO:

So things like body mass index, tobacco usage, parity, none of that?

Dr. BERG:

None of that was really considered in this study.

Dr. MAZULLO:

But, you did consider some other wonderful things and so as far the findings and the combination of using mammography and ultrasound, did you find a greater accuracy to detect cancer?

Dr. BERG:

We did. So, if we look at the combination of the two tests together, we had an accuracy of 91% compared to 78% for mammography alone and that considered for increased cancer detection as well as increased confidence of the radiologists who were performing the test to interpret it appropriately.

Dr. MAZULLO:

So, after the results of this study, did you find anyone who ultrasound did not benefit?

Dr. BERG:

I wouldn't really say that except that of course again we had some issue of false positives and there was the high risk of having an unnecessary biopsy because of the ultrasound. So, that wasn't associated with any particular patient characteristics, but it was seen in the study. If we look at mammography alone, about 1 in 40 women had an unnecessary biopsy which is quite comparable to other studies of mammography. If we added the ultrasound, then about 1 in 10 women had an unnecessary biopsy which is substantial and for most women they were much more interested in the potential to find a problem if there was one and to find it early than they were willing to accept that risk, but we are also in the process of reporting our analysis of the tolerability of these tests and for some women that risk of an unnecessary biopsy is too much, it is too stressful, and they shouldn't have it.

Dr. MAZULLO:

Yeah, I think the physical and the mental discomfort is extreme for most patients when they do this?

Thanks to Dr. Wendy Berg who has been our guest and we have been discussing ultrasound as a modality for improved breast cancer detection. I am Dr. Lisa Mazullo. You have been listening to the Advances in Women's Health on ReachMD XM 157, The Channel for Medical Professionals. Please visit our website at www.reachmd.com, which features our entire library through on-demand pod cast or call us toll free with your comments and suggestions at 888 MD XM157. Thank you for listening.

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DOCTOR:

So Rachel.

RACHEL:

Hmm hmm.

DOCTOR:

Now that you are past menopause and we have determined you have osteoporosis, I would like to start you on prescription only Evista, raloxifene hydrochloride tablets.

RACHEL

Why Evista?

DOCTOR:

Because it's the only medicine that reduces the risk of osteoporotic fractures and invasive breast cancer in women like you. It is important to note that although Evista does not treat breast cancer, prevent its return or reduce the risk of all forms of breast cancer.

RACHEL

Am I really at risk for invasive breast cancer?

DOCTOR:

Based on my risk assessment, you may be. Some risk factors for breast cancer include advancing age, family history, and personal history.

RACHEL

So, even though no one in my family has ever had breast cancer and still at risk for other reasons including my advancing age?

DOCTOR:

Exactly, and I think the benefits outweigh the potential risks for you. It is the one medicine that treats osteoporosis and reduces the risk of invasive breast cancer in postmenopausal women with osteoporosis. Individual results may vary of course, but that is exciting news.

RACHEL

Exciting, I have to take your word on that doctor.

DOCTOR:

Evista increases the risk of blood clots. It should not be used by women who have or have had blood clots in the legs, lungs, or eyes. Evista may increase the risk of dying from stroke in women at high risk for heart disease or stroke. Talk to your doctor about all your medical conditions. Seek care immediately if you have leg pain or warmth; swelling of the legs, hands, or feet; chest pain; shortness of breath; or a sudden vision change. Do not use Evista if you are pregnant, nursing, or may become pregnant as it may cause fetal harm. Women with liver or kidney disease should use Evista with caution. Evista should not be taken with estrogens. Side effects may include hot flashes, leg cramps, and swelling. For more information about Evista, contact your Lilly sales representative, visit www.evista.com, see our ad in good housekeeping or call 188-844-Evista.