

The Exciting New Screening Test for Breast Cancer

by

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Breast cancer strikes one of every eight women who live to eighty-five. Breast cancer strikes women younger than thirty, and is a major killer of women in their forties and fifties. Some women develop breast cancer prior to or during pregnancy, putting them in a quandary as to how best to handle both the cancer and the pregnancy. As breast cancer survivors age, they are told not to take hormone replacement. Thus, many suffer with hot flashes and vaginal dryness. Is it any wonder that breast cancer is so often on our minds?

Despite large amounts spent annually on breast cancer screening, the death rate from breast cancer has had only modest improvement compared to cervical cancer. Much of this decline is due to finding smaller tumors. However, this trend may not continue given technological limits in detecting smaller lesions. In contrast, significant progress has been made in reducing deaths from cervical cancer, in large part due to the widespread adoption of the Pap test as a screen for cervical cancer, prior to the formation of cancer. Wouldn't it be nice to have a screening test for breast cancer that could do what the Pap smear has done for cervical cancer?

In this article, I discuss the current recommended screening methods for breast cancer and then highlight a new screening test, called HALO, which looks at cells in fluid withdrawn from the nipple (nipple aspirate fluid) in much the same way as a pap smear looks at cells scraped from the cervix. HALO can better establish an individual's risk of developing breast cancer and enables the patient and her physician to plan an individualized approach to future screening and/or treatment.

To combat the morbidity and mortality of breast cancer, my goal as a physician has always been early detection via screening. Breast cancer screening guidelines include three tests: breast self-examination, clinical breast examination and mammography. Breast self-examination and clinical breast examination have been long standing fundamentals in breast cancer screening and are recommended by most professional medical organizations, including the American College of Obstetrics and Gynecology and the American Cancer Society. The effectiveness of breast self-examination, however, has recently been challenged.

In a recent study of breast self-examination involving 266,064 women who worked in Shanghai factories, half were assigned to examine their breasts every month for lumps and were taught how to do it. The rest served as controls. After ten years, there was no difference in the death rates between the two groups. The women who did breast self-examination did find more lumps and, therefore, had more biopsies for non-cancerous

growths. Yet there was no evidence that the cancers that were detected were found at an earlier stage.

Nonetheless, I still recommend breast self-examination for all women. In addition, I do a yearly clinical breast examination on all my patients and recommend screening mammography for women over forty.

However, if we can determine which women are at higher risk of developing breast cancer, we can take a more individualized approach to screening. This may include additional tests such as breast ultrasound or MRI, more frequent exams or starting mammograms at a younger age in higher risk women. Those at the highest risk may consider medication which has been shown to decrease the risk of invasive breast cancer in certain circumstances. It is clear that I can best help my patients by determining their individual risk for breast cancer so they may make an informed choice regarding their appropriate approach to screening.

Probably the most widely know model for predicting a woman's risk of developing breast cancer is the Gail Model. This model estimates the likelihood that an individual woman will develop breast cancer over a five year period and over her projected lifetime by accounting for five significant predictors of a woman's lifetime breast cancer risk: current age, age at initiation of menses, number of breast biopsies, age at first live birth and number of first degree relatives with breast cancer. If a woman's risk of developing breast cancer in the next five years is greater than 1.7 percent, she is considered high risk. This model was developed to test the use of Tamoxifen for prevention or development of invasive breast cancer in this group of high risk women. Tamoxifen was shown to reduce the incidence of invasive breast cancer by fifty percent in these high risk women.

Another way of predicting a woman's risk of developing breast cancer is to look for genetic mutations. Advances in genetics have enabled us to test for mutations of the BRCA gene in women with a strong family history of breast cancer. Women who possess this mutation have a greatly increased chance of developing breast cancer in their lifetime. However, as only approximately five percent of breast cancers are genetic in nature, this does not apply to many women.

HALO is the new noninvasive screening test which can determine which women are at higher risk of breast cancer by looking at cells from a woman's breast, rather than demographic variables or genetic mutations. It involves the placement of a breast pump like device on a woman's breasts. Through warming and massaging of the breast by the pump, fluid can be expressed in approximately fifty percent of women. The procedure takes approximately five minutes and women describe it as less uncomfortable than getting a mammogram.

This test, therefore, is applicable to all women. To understand why a test such as this works, it is first important to realize that virtually all breast cancer originates in the cells that line the interior of the milk ducts in the breasts. Like cervical cancer, breast cancer progresses through identifiable stages of development, taking a long time for a normal

cell to progress to a cancerous growth. In fact, breast cancer typically takes eight years before it can be detected by mammography, or up to ten years before the lesion is palpable. Unlike cervical cancer, however, not all women will express cells during the course of this test. And, unlike cervical cancer, those women who do not produce cells are actually at the lowest risk of developing breast cancer.

A HALO nipple aspirate fluid examination allows the detection of benign breast disease, and the attendant increase in relative risk of developing breast cancer, years before an abnormality becomes visible by imaging or becomes a palpable lesion.

The study of nipple aspirate fluid to determine breast disease is not new. In 1958 Dr. George Papanicolaou, the originator of the Pap smear, described obtaining fluid from the breast milk ducts by suction to analyze cell samples. Just like his procedure for detecting normal versus abnormal cells in the cervix, this technique demonstrated the ability to find abnormal cells in fluid from within the breast duct. Dr. Papanicolaou concluded that “cytology of breast secretions was valuable in differential diagnosis of mammary diseases and carcinoma” and that “a cytological diagnosis of malignancy was highly reliable.”

This test is still in its early stages, and questions remain to be answered. Most of these questions have to do with what to do with the results. While we don't have all the answers, there are some good options at the current time. Depending on the results, these include repeating the HALO test on a regular basis, similar to what is done for mammography, increased surveillance with additional or more frequent imaging techniques, chemoprevention of breast cancer or, in rare cases, surgery.

HALO, in essence, is the new Pap smear for the breast. Since all women are at risk of breast cancer, and that risk only increases with age, any noninvasive test that can help us better determine a woman's risk and allow for an individualized approach to screening and/or treatment is valuable. Thus, I recommend all women should discuss this exciting new test with their physicians. I discuss it with my patients and, in many instances, recommend it. Breast cancer affects too many women for us not to do all that we can to discover it as early as possible.

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