

BREAST CANCER SCREENING METHODS - REVIEW ARTICLE

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ABSTRACT

Breast cancer is the most common cancer in women both in the developed and less developed world. It is estimated that worldwide over 508 000 women died in 2011 due to breast cancer (Global Health Estimates, WHO 2013). Although breast cancer is thought to be a disease of the developed world, almost 50% of breast cancer cases and 58% of deaths occur in less developed countries (GLOBOCAN 2008). Women who are at high risk for breast cancer based on certain factors should get an MRI and a mammogram every year, typically starting at age 30. Breast screening has a significant impact on mortality and prognosis of breast cancer. Through breast screening, cancers can be detected early when they are small and have not spread to lymph nodes making breast conservation possible as well causing reduction in mortality from breast cancer.

KEYWORDS: Breast cancer, screening, warning signs.**SCREENING**

Screening is a systematic evaluation of a “normal” individual to see if there is any underlying cancer. Routine breast screening greatly increases the rate of early breast cancer detection, in particular for noninvasive DCIS, sometimes called “prebreast cancer,” which almost never forms a lump and which generally cannot be detected except through mammography.

The ACS recommends that all women should become familiar with the potential benefits, limitations, and harms associated with breast cancer screening.

Recommendations^[1]

1. Women with an average risk of breast cancer should undergo regular screening mammography starting at age 45 years. (Strong Recommendation).
 - ✓ 1a. Women aged 45 to 54 years should be screened annually. (Qualified Recommendation).
 - ✓ 1b. Women 55 years and older should transition to biennial screening or have the opportunity to continue screening annually. (Qualified Recommendation).
 - ✓ 1c. Women should have the opportunity to begin annual screening between the ages of 40 and 44 years. (Qualified Recommendation).
2. Women should continue screening mammography as long as their overall health is good and they have a life expectancy of 10 years or longer. (Qualified Recommendation).
3. The ACS does not recommend clinical breast examination for breast cancer screening among

average-risk women at any age. (Qualified Recommendation).

In India due to lack of awareness, no proper organized screening program for breast is in action. The following factors make screening extremely important especially in India: 2.

- Age shift (more young women affected in their 30s and 40s).
- Rising number of cases of breast cancer in India.
- Late presentation (this directly decreases long-term survival of the patient).
- Lack of awareness among women.
- Aggressive cancers in young (the younger the age before menopause, the more aggressive the cancer).

Warning Signs of Breast Cancer^[3]

- Lump, hard knot or thickening inside the breast or underarm area
- Swelling, warmth, redness or darkening of the breast
- Change in the size or shape of the breast
- Dimpling or puckering of the skin
- Itchy, scaly sore or rash on the nipple
- Pulling in of your nipple or other parts of the breast
- Nipple discharge that starts suddenly
- New pain in one spot that does not go away.

Early Detection^[4,5]

There are two early detection methods:

- Early diagnosis or awareness of early signs and symptoms in symptomatic populations in order to facilitate diagnosis and early treatment, and

- Screening that is the systematic application of a screening test in a presumably asymptomatic population. It aims to identify individuals with an abnormality suggestive of cancer.

Breast awareness

Breast awareness implies familiarity with one's own breast. Knowing what is normal for the women may help to see or feel changes in the breasts.

Clinical breast exam and breast self-exam

A breast self-examination can be done monthly during the bath, best time being just at the end of menses. This helps to keep in notice any irregularity or any lumps in the breast. A clinical breast exam (CBE) is a physical exam done by a trained medical staff. But breast self-exam and CBE have not proved effective for the purpose of breast screening. Women should be familiar with how their breasts normally look and feel and report any changes to a health care provider right away.

Mammography

Screening mammograms usually involve two images of each breast and make it possible to detect abnormalities of the breast that cannot be felt. Screening mammograms can also find micro-calcifications that can sometimes indicate the presence of breast cancer or neoplasm.

Other signs and symptoms that support a diagnostic mammogram can include:

- Breast lumps or masses
- Breast pain
- Thickening of the skin of the breast
- Nipple discharge
- Change in breast size or shape.

Digital mammography

Compared to film mammography, digital mammography appears to be better at detecting breast cancer in women who:

- Are premenopausal or peri-menopausal
- Are under age 50
- Have dense breast tissue.

Ultrasonography

Most useful adjunct to mammography for the diagnosis of breast abnormalities.

- Ultrasonography (USG) has become the primary imaging modality for younger women and pregnant or lactating patients
- Because of its inability to demonstrate microcalcifications, sonography cannot replace mammography for the purpose of mass screening.

Breast magnetic resonance imaging

At this time, breast magnetic resonance imaging (MRI) is mostly used in breast cancer diagnosis and staging, rather than in screening. However, there is growing evidence that breast MRI in combination with mammography,

compared with mammography alone, can increase detection of breast cancer in certain women at high risk.

Newer and Experimental Breast Imaging Tests^[6]

Newer types of tests are being developed for breast imaging. Some of these are already being used in certain situations, while others are still being studied. It will take time to see if any are as good as or better than those used today.

- ❖ A newer type of mammogram is known as **breast tomosynthesis** or **3D mammography**. For this test, a machine takes many low-dose x-rays as it moves over the breast.
- ❖ **Optical imaging tests** pass light into the breast and then measure the light that returns or passes through the tissue. The technique does not use radiation and does not require breast compression.
- ❖ **Molecular breast imaging (MBI)** is a newer nuclear medicine imaging test for the breast. A radioactive chemical is injected into the blood, and a special camera is used to see it in the breast.
- ❖ **Positron Emission Mammography (PEM)** is a newer imaging test of the breast. A form of sugar attached to a radioactive particle is injected into the blood to detect cancer cells. As with MBI, it exposes the whole body to radiation, so it's unlikely to be a test that could be used every year for breast cancer screening.
- ❖ **Electrical impedance imaging (EIT)** scans the breast for electrical conductivity. It's based on the idea that breast cancer cells conduct electricity differently from normal cells.
- ❖ **Elastography** is a test that can be done as part of an ultrasound exam. It's based on the idea that breast cancers tend to be firmer and stiffer than the surrounding breast tissue. This test could be useful in telling if the area is more likely to be cancer or a benign (non-cancerous) tumor.

CONCLUSION

By regular check ups and by being alert, we can catch the cancer in its initial stage. To note here, as the stage of a cancer increases, the survival becomes less and less. So it is essential to detect cancers early. We CANNOT PREVENT a cancer, but we CAN definitely DETECT it EARLY!

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