

Breast Cancer Screening

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Screening is an important element in any cancer control program. It is nothing but a means to detect the disease early when the symptoms are not evident.

Cancer screening programs target large, healthy (asymptomatic) populations. Although huge numbers of individuals may undergo screening, cancer will be detected in relatively few. Thus screening programs take up enormous resources. The ultimate goal of these programs is to reduce mortality and improve quality of life.

Cole and Morrison in 1980 proposed that screening for a particular cancer must be introduced only if it meets the following three conditions:

1. There has to be effective treatment for the cancer and the treatment has to be more effective for cases detected by screening.
2. Cancer should have high prevalence to justify the cost of screening
3. The cancer should have serious consequences (significant morbidity and mortality).

Many investigators have since then argued that breast cancer meets the criteria outlined by Cole and Morrison and therefore considerable interest has centered on screening as a means to reduce breast cancer mortality.

Some concern about Screening:

For screening to be most effective the treatment in the early stages must be curative and the screening procedure must lead to decreased cause specific mortality in a clinical trial. Early detection of cancer can be of apparent benefit to the individual without a true advantage, and there can even be a net harm. The person screened is at risk for the following:

1. Unnecessary morbidity due to screening procedure itself
2. Morbidity associated with work up of positive test results
3. Excess morbidity and costs from treatment of true positive test results, even if life is extended by treatment.
4. The emotional and social repercussions of false positive results
5. The potential overtreatment of indolent lesions of no threat (over diagnosis)
6. The false reassurance of a false negative test

Hence screening of any cancer must be done under the supervision of an oncologist. It must be understood that inspite of a negative result during screening, the future development of cancer cannot be ruled out.

Screening of Breast Cancer:

Breast cancer is the most common malignant neoplasm in women worldwide. In our hospital we see on an average 120 newly diagnosed breast cancer patients every year which amounts to roughly 20 to 25% of all cancer patients presenting to our clinics. Approximately one in nine women living upto the age of 90 years will eventually be diagnosed as having breast cancer. The risk factors for breast cancer are hereditary (two or more first degree relatives), obesity, advancing age, early menarche, late menopause, nulliparity, delayed age at first child birth and alcohol consumption.

In the recent years, screening has been widely promoted as a means of reducing breast cancer mortality. Patients with screen detected cancers can generally be treated with breast conservative surgery. Additionally, the overviews from breast cancer screening trials suggest that screening reduces breast cancer mortality by about 25% in post menopausal women. There are three main commonly employed methods of screening of breast cancers. These are:

1. Mammography
2. Clinical Breast Examination using trained personnel and
3. Breast Self Examination

Mammography is an investigation which involves the X-rays to detect the lesions in the breast. The individual is subjected to X-rays to the breast in two different angles so as to detect any hidden lesions in the breast. Since the process involves X-rays, its use as a screening tool must be done strictly after consulting an oncologist. Hence this procedure is directed towards women at high risk. Mammography screening increases the detection of ductal carcinoma in situ (DCIS) and impalpable, node negative invasive cancers. However this is not the most effective screening tool in breast cancer. Screening mammography has reduced mortality of breast cancer by 30% in women older than 50 years age group (more specifically in the age group of 50 to 69 years). The mammography has a sensitivity of 85 to 90%.

Clinical Breast Examination (CBE) is a detailed examination of both the breasts in different positions by trained personnel such as physicians, nurses and physician's assistants. In women undergoing screening CBE, there is no suspicion of an abnormality. Therefore the examination must be more painstaking to exclude any abnormalities. Evidence suggests that CBE detects most breast cancers found by mammograms and also some that mammograms miss, particularly in younger women. Recent estimates suggest that screening CBE has a sensitivity of about 54% and specificity of 94%.

Breast Self Examination (SBE) is an examination of the breast done once a month by the woman herself. Under this, a woman above the age of 20 years is taught to perform self examination of both the breasts in a specified order. This has to be done once a month and on suspicion of a lesion, is advised to approach health professional for further guidance.

The order of BSE is as under:

1. The examination must be conducted in front of a mirror to visualize any variation in the breast in terms of symmetry or pulling up of a nipple of one side.
2. Any skin changes to be noticed (peau de orange: Orange skin peel appearance) which may be attributable to the underlying malignancy.
3. Breast is divided into 4 quadrants, a central nipple area and a tail part which is more towards the same side axilla.
4. All the 4 quadrants, the nipple area and the axillary tail part must be palpated both with middle three fingers and with palm of the hand. The palpation must be done with small circular movements of the fingers; up and down movements of the palm across the breast and also towards the axillary tail area.

Even though breast self examination has not shown any significant reduction in mortality in the clinical trials, it creates awareness about the disease and if done along with CBE on regular basis, reduces the morbidity and mortality of this disease.

Finally it would be appropriate now to mention who should undergo these screening procedures and when at what age. The screening procedures differ in populations based on the risk factors. People with low risk have procedures at different intervals of time than those with high risk.

There are various organizations such as American Cancer Society (ACS), Canadian Task Force on Preventive Health care (CTFPHC), US Preventive Services Task Force (USPSTF), and American College of Physicians (ACP). Each of them have a separate recommendation for cancer screening. We are recommending the following screening schedule in concurrence with the American Cancer Society and the Canadian Task Force recommendation for the breast cancer screening, which suits our Indian population. The following table shows the screening schedule for normal low risk population:

SN	Test/ Procedure	Age Group	Frequency
1	Breast Self Examination	Age 20 years and older	Monthly
2	Clinical Breast Examination	Age of 20 to 40 years Age more than 40 years	Once every 3 years Yearly
3	Mammography	Age more than 49 years	Yearly

For women with high risk group: Women at increased risk (for example, family history, genetic tendency, past breast cancer) should talk with their doctors about the benefits and limitations of starting mammography screening earlier, having additional tests (for example, breast ultrasound or MRI), or having more frequent exams.

The following algorithm represents the majority opinion of a number of breast cancer prevention experts:

SN	Risk Status	Management
1	High Risk	Annual CBE at 40 yrs and above Annual Mammography from 40 yrs and above HRT Counselling Consider Chemoprevention
2	Very High Risk	CBE every 6 months Annual Mammography Genetic counseling & testing Consider Chemoprevention

HRT: Hormone Replacement Therapy

Finally a word or two on towards prevention of cancer. This lies in the changes to be brought in the life style of our population. Diet should consist of low fat, high fiber content. Switching on to the vegetarian food with more than 5 servings of fruits per day is a very good option. One must exercise regularly preferably by yoga and pranayam and maintain a healthy life style.

