

Screening mammography - what your patients need to know

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Worldwide breast cancer remains the most common cancer in women.¹ In South Africa, one in 28 women will develop breast cancer during her lifetime.² The risk is even greater for specific ethnic groups such as caucasian women where the risk increases to one in 12.² Over the years the average age of women affected with breast cancer has decreased.³ Early detection and diagnosis of breast cancer is therefore essential. With the use of mammography, breast cancer can be detected before it is palpable. This aids in early detection of cancers that are still confined to the breast and require less aggressive management.

There are multiple factors that affect a woman's risk of developing breast cancer during her lifetime. The risk of breast cancer increases with age up to menopause, after which the incidence again decreases.⁴ A younger age at menarche and/or older age at menopause as well as an older age at first birth are also associated with an increased risk.⁴ A younger age at first birth and breastfeeding, however, especially if continued longer than a year, has been shown to reduce the risk of breast cancer.⁴ A family history of breast cancer as well as a personal history of breast cancer or benign breast disease (such as atypical epithelial hyperplasia) are also associated with an increased risk of breast cancer.⁴ Lifestyle factors, such as obesity, a diet high in saturated fats as well as excessive alcohol consumption have also been associated with an increased risk. Lastly, radiation to the chest especially before the age of 30 can also increase the risk of developing breast cancer.⁴

Most of the risk factors are beyond our control and therefore the emphasis should be on early detection of breast cancer. The first attempts to image the breast were over a century ago and recently there have been major advances in the field of breast imaging. Presently, mammography remains the mainstay of breast imaging; it is the only proven effective method for breast cancer screening.⁵

Screening mammography is performed in asymptomatic patients. Mammography uses low dose radiation to image the breasts. The study is usually performed on an outpatient basis and patients return home on the same day. During the study the breasts are gradually compressed by a clear compression paddle. This is important as it evens out the breast thickness and spreads the tissue so that small abnormalities can be better visualised. It is usually advised that a mammogram should be booked in the week following a woman's menstrual period, as the breasts are less tender during this time as compared to the premenstrual period. Patients are also advised to avoid applying lotion, powder or deodorant to the breasts or under the arms as they may look like calcifications on the mammogram and thereby mimic cancer.

The sensitivity of mammography depends on a variety of factors, especially the density of breast tissue. With increased breast density, often but not exclusively found in younger women, the sensitivity of mammography decreases. With an increase in age, breast density generally decreases and the sensitivity of mammography generally increases.⁶

Mammography is therefore often used in conjunction with breast ultrasound, especially in younger women, to aid with problem solving or to guide intervention.⁶ Recent advances in technology such as digital tomosynthesis (3D mammography) and contrast mammography further improve the detection rate and problem solving of conventional mammography. Breast Magnetic Resonance Imaging (MRI) can additionally be performed in selected circumstances or high-risk patients to improve detection of abnormalities.

Other methods, such as breast thermography or light technology, have been proposed as methods of breast cancer screening. These methods have not been proven to be effective compared to mammography and do not replace

mammographic screening. These methods, therefore, should be used with caution and should not be used in isolation for breast cancer screening.

Globally, the age at which to start mammographic screening, as well as the screening intervals, is a contentious issue. The Breast Imaging Society of South Africa, a subgroup of the Radiological Society of South Africa, recommends annual mammograms for women between the ages of 40 and 70 years in line with international recommendations.⁷ International literature has proven that annual screening mammography between the ages of 40 and 70 results in at least a 20% reduction in mortality from breast cancer.⁵

Women below the age of 40 should report to a clinician if any abnormalities of the breasts are detected and the appropriate imaging will follow depending on the patient's age and symptoms. Women with a family history of breast cancer should start screening 10 years before the age of diagnosis of the first degree relative, but not before the age of 30.^{7,8} Women with previous radiation therapy to the chest between the ages of 10 to 30 years should start mammographic screening eight years after radiation therapy but not before the age of 25.⁸

The World Health Organization has found that the greatest benefit of mammographic screening is between in ages of 50 to 69 and recommends at least biennial screening (every two years) in these women even in resource-limited environments.⁵

It is also recommend that screening in all women should continue as long as the patient's life expectancy is more than five to seven years, or as long as the patient would be willing to undergo further testing and treatment if an abnormality is detected.⁹

The concern about the effects of radiation of screening mammography have not been proven to be significant and since low-dose radiation techniques are used, this should not deter patients from having screening mammograms.⁵

There has also been literature aimed at the risk of overdiagnosis and the anxiety related to inconclusive mammograms. Approximately 10–15% of screening mammograms require further investigation and only 1–2% of women go on to have biopsies. Yet the benefit of early

detection of cancer and the resultant mortality benefit are deemed to outweigh the risk of overdiagnosis.⁵

In conclusion, breast cancer remains the most common cancer in women but if detected early the treatment options are greater and the mortality risk is significantly lower. Healthcare professionals should continue to educate themselves as well as the community about the benefits of mammographic screening, thereby aiding in the global fight against breast cancer.

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