

Breast Cancer Diagnosis

Breast cancer develops in the breast tissue and may present as a lump, change in breast shape, nipple discharge, or dimpling of the skin. Although this cancer is predominantly found in women, men may also develop breast cancer. Early detection is key to determine appropriate therapies for optimal prognosis. Diagnostic screening methods include monthly breast self-examinations and annual mammograms after age 40. If a tumor is suspected, other diagnostic tools include ultrasounds, MRIs, and breast tissue biopsy. Lymphatic mapping and dissection may be necessary, since lumps found in the lymph nodes may also indicate breast cancer. Receptor positivity of estrogen, progesterone, and HER-2 receptors helps determine appropriate drug therapy selection for better prognosis.



PLAY PICMONIC

Breast Self Exam

Doing Self Exam

After menarche, the woman should perform breast self-examinations (BSE) monthly after menstruation. If menstrual periods are irregular or the woman is post-menopausal, then BSE should be performed on the same day each month - example would be choosing the first day of the month. Allow questions and inform the patient about the benefits and limitations of BSE. Assess the patient's understanding through a return demonstration. Instruct the patient to report any breast changes immediately to her health care provider. Clinical breast exams may be performed every three years for women 20-40 years old and annually after age 40.

Mammography

Mammoth-graph

Mammography is a diagnostic screening method that uses x-rays to detect suspicious lumps. Digital mammography involves digitally coding x-ray images into a computer while 3-D mammography produces a clear 3-D image of the breast tissue. Annual mammograms should begin at age 40. Mammography screenings may be done earlier if the woman has a family history, genetic link, or previous diagnosis of breast cancer. The comparison of previous and current mammograms may reveal early changes in breast tissue.

Ultrasound

Ultrasound-machine

Ultrasound is a diagnostic tool that determines whether the mass detected via mammography is cystic or solid. Ultrasound is also used to locate a suspicious lesion for biopsy.

MRI for High Risk Patients

M-R-eyes Machine with Up-arrow Risk Patient

Women with increased risk of breast cancer may have MRI diagnostic tests to determine breast tissue abnormalities not visible via mammography.

Confirmed with Biopsy

Confirmed Biopsy-needle

Tissue biopsy is a definitive tool for diagnosing breast cancer. Although surgical biopsy may be done to remove a breast mass or lump for analysis, less invasive techniques are more commonly performed. After locally anesthetizing the breast area, a needle is inserted into the breast tissue to extract cells for further examination. A larger tumor size indicates a poorer prognosis of breast cancer. Cells collected from biopsy that are poorly differentiated suggest a more aggressive cancer.

Considerations

Lymph Node Involvement

Lime-nose

Since breast cancer may spread to lymph nodes, examining the axilla is important to determine if the cancer has spread. Increased lymph node involvement raises the risk of recurrence. Diagnostic tests to determine lymph node involvement include lymphatic mapping and sentinel lymph node dissection (SLND). During an SLND, a dye is injected in the affected breast to determine which lymph nodes are involved and may be removed.

Receptor Positivity

[Receptor Positive \(+\) Sign](#)

Determining receptor positivity is a diagnostic tool that helps determine breast cancer treatment and prognosis. Using diagnostic testing to find out the presence of estrogen, progesterone, and HER-2 receptors helps determine appropriate drug therapy and sequence.

Estrogen and Progesterone Receptors

[Easter-eggs and Pregnant-jester](#)

Estrogen and progesterone are hormones that affect breast cancer. Receptor-positive tumors are well differentiated, have more normal DNA material, have a lower risk of recurrence, and responsive to hormone therapy. Receptor-negative tumors are poorly differentiated, have more abnormal DNA content, have higher recurrence risks, and unresponsive to hormone therapy.

HER-2

[HER \(2\) Tutu Breast Cancer with Tumor-guy](#)

In patients with breast cancer, overexpression of the HER-2 receptor is related to aggressive tumor growth, increased risk of recurrence, and a poorer prognosis. By using diagnostic testing to determine the increased number of HER-2 receptors, appropriate drug therapy selection can be initiated.