Breast Cancer

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What is Breast Cancer?

• Abnormal cell Growth
  Breast tissue cells replicate uncontrollably and form a body of cells called a "tumor".
• Benign tumors
  Tumors are not cancerous and are limited to few cell layers. They don’t invade surrounding tissues or organs.
• Malignant tumors
  Tumor are cancerous and may spread to other parts of the body. This is known as metastasis.

Who is Affected?

• Breast Cancer frequency is higher in more developed countries then in less developed countries.
• Women in Northern America have a 1 in 8 chance of developing Breast cancer.
• Men are 100 times less likely to develop breast cancer then woman, though survival rates are about the same.

Anatomy of the Breast

• Breasts are accumulated fatty tissue and glands that generate milk after a woman gives birth.
• Lobules are the glands that produce milk.
• Ducts are tubes that connect the lobules to the nipple.

Ductal & Lobular Cells

• Most Breast cancers arise in the glandular tissue of the upper, central, and outer areas of the breast.
• Roughly 80% of breast cancers originate from the ducts, which account for most of the breast tissue. Tumors located in the ducts are called Ductal Carcinoma.
• Lobular Carcinoma is cancer found in the lobules.
• Tumors rarely appear in fatty or non glandular tissue, and if so, they usually arise from bone, muscle, connective tissue, or fat.

Symptoms

• Early Breast Cancer has no symptoms and not painful.
• Lumps in the breast.
• Breast discharge, nipple inversion, or changes in breast tissue.
Methods for Diagnosis

- **Surgical Biopsy**
  Distinguishes between solid tumors and cysts. Solid tumors are tested in a laboratory.

- **Needle Aspiration Biopsy**
  Removes a portion or the whole lump and surrounding tissue. Samples are tested in a laboratory.

Early Stages

- **Stage 0**
  Cells are present in a lobule or a duct.

- **Stage I**
  Tumor is 2cm or less and has spread to nearby tissue.

- **Stage II**
  Tumor is 2 to 5cm and may have spread to lymph nodes.

- **Stage IIIA**
  Tumor is 2inches or greater and has grown extensively into axillary lymph nodes.

Advanced Stages

- **Stage IIIIB/C**
  Has spread into skin of breast or tissues of chest wall.

- **Stage IV**
  Has metastasized to other parts of the body such as bones, liver, lungs, or brain.

- **Recurrence**
  Can return after treatment.

Treatment

- **Surgery** removes entire breast and/or certain contents of the breast

- **Chemotherapy** kills cancer cells or stops them from replicating

- **Hormonal Therapy** treats existing tumors or prevents recurrence

- **Monoclonal Antibodies** recognize novel cancer cells and attack them

Genetics plays a role in breast Cancer

- **Having relatives** with Breast cancer greatly increases a woman’s risk.

- **Mutations** in genes are believed to be passed along in families that cause breast cancer.

- **BRCA1 and BRCA2** are abnormal genes that remarkably increase the risk. Such genes are inherited.

Hormonal Influences

- Woman who start a menstrual cycle at an early age or start menopause at an older age are at greater risk.

- **Bearing no children or giving birth after 30yrs of age** increases a woman’s risk of developing Breast Cancer.

- **Hormone Therapy** may also increase a woman’s risk.
**Lifestyle, Environment and Diet**

- **Alcohol** increases the risk of breast cancer.
- Women living in countries with high dietary intake of fat develop the disease more often.
- **Exercising** regularly can reduce risk.
- **Radiation Treatment** increases breast cancer risk.
- **Obesity** increases risk.

**Early Detection is the Best Prevention**

- **Physical Examinations**
- **Breast self-examinations**
- **Mammograms**

**Recent Advances**

- **Blood Test**
  Check for mutations in genes that control normal cell growth. Does not detect cancer but determines risk factor. People with the BRCA-1 have an 85% chance of developing breast cancer. BRCA-1 and BRCA-2 have also been linked to other types of cancers in both men and woman.

**Works Cited**