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Opinion Article

The Spectrum: Types of Breast Cancer and Their Characteristics

Benlong Yang*

Department of Cancer Research, University of Radiation Biology and Medicine, Shanghai, China

DESCRIPTION

Breast cancer originates in the cells of the breast. It occurs when these cells grow uncontrollably, forming a tumor that can often be felt as a lump. Although breast cancer primarily affects women, men can also develop the disease, albeit at a much lower frequency. Despite significant advancements in research and treatment, it remains a leading cause of cancer-related deaths. Uses high-energy rays to target and kill cancer cells, often after surgery to eliminate remaining cancer cells. Involves drugs that kill cancer cells or stop their growth. It can be administered before surgery (neoadjuvant) to shrink tumors or after (adjuvant) to kill any remaining cancer cells. Effective for hormone receptor-positive breast cancers. It blocks the body's natural hormones that fuel cancer growth. Drugs like trastuzumab have significantly improved outcomes for HER2-positive breast cancers. It's being studied in clinical trials for its efficacy in treating breast cancer.

Causes and risk factors

The exact cause of breast cancer is unknown, but several risk factors have been identified:

Breast Cancer gene (*BRCA1* and *BRCA2*): Mutations in these genes significantly increase the risk of breast and ovarian cancers. Women with these mutations have a lifetime breast cancer risk of up to 80%.

Family history: A family history of breast cancer can indicate a genetic predisposition.

Estrogen exposure: Prolonged exposure to estrogen, such as early menstruation, late menopause or hormone replacement therapy, increases the risk.

Reproductive history: Having the first child at an older age or not having children can elevate the risk.

Diet and obesity: A high-fat diet and obesity, particularly after menopause, can increase risk.

Alcohol consumption: Regular alcohol consumption is linked to a higher risk of breast cancer.

Radiation exposure: Previous exposure to radiation therapy, especially during puberty, can elevate the risk.

Age: The risk increases with age, particularly after 50.

Ethnicity: Certain ethnic groups, such as Ashkenazi Jews, have a higher prevalence of *BRCA* mutations.

Types of Breast Cancer

Breast cancer is classified into several types based on where it originates and its characteristics:

Ductal Carcinoma *In Situ* (DCIS): It's considered the earliest form of breast cancer and is highly treatable.

Invasive Ductal Carcinoma (IDC): IDC is the most common type of breast cancer, making up about 80% of cases. It begins in the milk ducts and invades surrounding breast tissue.

Invasive Lobular Carcinoma (ILC): ILC starts in the lobules (milk-producing glands) and can spread to nearby tissues. It's less common than IDC but can be more difficult to detect on mammograms.

Triple-negative breast cancer: This type lacks estrogen, progesterone, and HER2 receptors, making it more challenging to treat with hormone therapy. It tends to be more aggressive and has fewer treatment options.

Human Epidermal Growth Factor Receptor (HER2): HER2-positive cancers have higher levels of the HER2 protein, promoting cancer cell growth. Targeted therapies like trastuzumab (herceptin) are effective in treating this type.

Treatment approaches

Treatment approaches for breast cancer depend on several factors, including the stage of cancer, the specific characteristics of the tumor and the overall health and preferences of the patient. Here are some common treatment approaches used:

Surgery: Surgery is often the first treatment for breast cancer. The type of surgery depends on the size and location of the tumor. Options include:

Correspondence to: Benlong Yang, Department of Cancer Research, University of Radiation Biology and Medicine, Shanghai, China, E mail: yang.bl@vip.sina.com

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Lumpectomy: Removal of the tumor and a small amount of surrounding healthy tissue.

Mastectomy: Removal of the entire breast that contains the tumor.

Sentinel lymph node biopsy: Removal and examination of the lymph nodes under the arm to determine if cancer has spread.

Radiation therapy: Radiation therapy uses high-energy rays to kill cancer cells. It can be used after surgery to destroy any remaining cancer cells or as the primary treatment for tumors that can't be removed surgically.

Targeted therapy: Targeted therapy targets specific molecules involved in cancer growth. Examples include drugs like trastuzumab (Herceptin) for HER2-positive breast cancers. These therapies can be used in combination with other treatments.

Clinical trials: Clinical trials test new treatments or combinations of treatments to evaluate their effectiveness and safety. Participating in a clinical trial may provide access to innovative treatments.

Supportive care: Managing symptoms and side effects is an important part of treatment. This can include medications for pain management, nausea and other side effects, as well as emotional support and counseling.

CONCLUSION

Breast cancer remains a significant health concern, but advances in study, treatment and awareness have improved survival rates and quality of life for many patients. Early detection through regular screenings and being aware of risk factors and symptoms are basic steps in the fight against breast cancer. By adopting a healthy lifestyle and staying informed, individuals can take proactive measures to reduce their risk and ensure early diagnosis and treatment. Through collective efforts in prevention, treatment and support, we strive for a future where breast cancer no longer poses a threat to women's health and well-being.