Journal of Integrated Community Health
Volume 8, Issue 2 - 2019, Pg. No. 27-31
Peer Reviewed & Open Access Journal

Review Article

Young Age Breast Cancer - A Review

Atiya Samad[1], Saba Zaidi[2], Aisha Aijaz[3]

[1]MD Scholar, [2,3]Assistant Professor, Department of Tashreeh wa Munafeul Aza, Faculty of Unani Medicine AKTC, AMU, Aligarh.

I N F O

Corresponding Author:
Atiya Samad, Department of Tashreeh wa Munafeul Aza, Faculty of Unani Medicine AKTC, AMU, Aligarh.
E-mail Id:
atiyasamad7@gmail.com
Orcid Id:
https://orcid.org/0000-0003-3062-7712
How to cite this article:
Samad A, Zaidi S, Aijaz A. Young Age Breast Cancer - A Review. *J Integ Comm Health* 2019; 8(2): 27-31.

Date of Submission: 2020-02-19
Date of Acceptance: 2020-04-03

A B S T R A C T

Young Age Breast Cancer (YABC) has unparalleled clinical and biological characteristics that are not seen in old age patients. Breast tumor pathophysiology is associated with an unfavorable prognosis in young age ladies. The diagnosis of breast cancer is usually delayed, causing in their presentation with advanced disease. Together, these features lead to a bad prognosis in younger women as compared to women of old age. There is higher rate of recurrence after receiving treatment and therapy. Therefore, it is important to secure ample resection margins and consider encourage radiotherapy to prevent local treatment failure. Based on age exclusively, patients with YABC should be looked upon high-risk cases, and they should be managed with adjuvant chemotherapy. Particular considerations considering psychosocial factors and fertility should be taken into account for young patients. This review talks about the major considerations and rationales concerning the treatment of patients with YABC.

Keywords: Age Factors, Age of Onset, Breast Neoplasms, Disease Management

Introduction

Breast cancer is the most vernacular invasive cancer in women and the second contributing cause of carcinoma death in adult female. After puberty a women's breast consists of fat, connective tissue, many of lobules. There are petite glands that produce milk for breastfeeding. Petite tubes or ducts carry the milk towards the nipple. Carcinoma leads to the cells to multiply uncontrollably. The overweening cell growth leads cancer because the neoplasm uses nutrients and energy and strips the cells around it. Breast cancer commonly starts in the inner lining of milk ducts or the lobules that add them with milk. From there it can circulate to other parts of body.[1,2,3] Young Age Breast Cancer (YABC) has unparalleled clinical and biological characteristics that are not seen in older patients. Breast cancer biology is more fast-growing and is associated with an unfavorable prospect in younger women. Young women who get breast conserving therapy have a higher rate of local recurrence. Hence it is important to secure enough resection margins and consider fillip radiotherapy to forbid local treatment failure. Based on age patient with YABC should be looked upon high risk cases and they had better be treated with adjuvant chemotherapy. It is significant to appreciate the divergences between breast cancer in young and older women.[4,5]

Causes of Breast Cancer

Certain genes control the life cycle-the growth, function, division, and death-of a cell. When these genes are damaged, the balance between normal cell growth and death is lost. Normal breast cells become cancerous because of changes in DNA structure. Breast cancer is caused by cellular DNA damage that leads to out-of-control cell growth.[6,7,8]

Genetics & Mutations

Inherited genes can enhance the likeliness of breast cancer. For instance, mutations of genes BRCA1 and BRCA2 (linked to raise risk of breast and ovarian malignant neoplastic disease) can inhibit the body's capacity to precaution

and repair of DNA. Copies of these mutated genes can be communicated genetically to next generations, extending to a genetically-inherited raised risk of malignancy.[6,7,8]

Environment

Breast cancer may be caused by environmental exposure. Sunlight can cause DNA damage that leads to breast cancer through ultraviolet radiation. So can air pollutants like soot, wood dust, asbestos, and arsenic, to name just a few.[6,7,8]

Lifestyle

Lifestyle choices can lead to breast cancer as well. Eating a poor diet, inactivity, obesity, heavy alcohol use, tobacco use including smoking, and exposure to chemicals and toxins are all associated with a greater breast cancer risk.[6,7,8]

Medical Treatment

Medical treatment with chemotherapy, radiation, or immunosuppressive drugs used to decrease the spread of cancer throughout the body can also cause damage to healthy cells.[6,7,8]

Occurrence

In India, the incidence of breast cancer is increasing, with an estimated 80,000 new cases diagnosed annually. The incidence of breast cancer increased by approximately 50% between 1965 and 1985. Much of this increase may be associated with greater urbanization and improved life expectancy. According to American Cancer Society (ACS), there are more than 3.1million breast cancer survivors in the Unani States. In US alone, more or less 11,000 women aged < 40 years are diagnosed yearly with invading breast cancer. In Western women, more than four percent of breast cancer patients are aged less than thirty five years. An analysis on Korean patients found that ageless than thirty five.[9,10,11]

Clinical Features and Risk Factors[9,10,11,12]

- lumps or masses which are non-painful
- Swelling or lumps beneath the arms
- Changes in Nipple skin
- Flattening of the breast
- Discharge from the nipple which is unusual in nature
- The breast tissue changes in the feel, shape or size

The following are higher risk factors: [9,10,11,12]

- A personal history of breast cancer or some noncancerous breast diseases
- A family history of breast cancer, particularly in a mother, daughter, or sister
- History of radiation treatments to the chest before age 40
- Having a specific genetic defect such as BRCA1 or BRCA2 mutation
- Getting period before age

Other risk factors include heavy alcohol use, high intake of red meat, dense breasts, obesity, and race.

Diagnosis

The diagnosis of breast cancer in young age patients is done by following means:

Screening

Breast cancer is generally diagnosed through either screening or a symptom (e.g., pain or a palpable mass) that prompts a diagnostic exam.

The alone screening test proven to cut down breast cancer-specific mortality is mammography. Screening mammography contributes to a 19% overall decrease in breast cancer mortality, with to a lesser extent benefit for women in their 40s (15%) and more profitable for women in their 60s (32%). As an effect, screening mammography is advocated by the American Cancer Society commencing at age 45, or earlier depending upon individual preference.[13,14,15,16,17]

Imaging and Staging

Physical health check, mammography, or ultrasound for the diagnostic purpose of a patient with newly diagnosed breast cancer is generally enough for local-regional staging. MRI is sometimes advocated, particularly when a patient is of young age group, a genetic mutation or multifocal illness is suspected, or a mammogram or ultrasound concedes indeterminate abnormal findings. Although breast MRI does detect additional disease in the contralateral breast approximately 3% of the time, met analyses of preoperative breast MRI have shown an increase in rates of mastectomy and no increase in local control after Breast-Conserving Surgery (BCS) and radiation treatment. Studies of breast MRI have also shown a risk for overestimation of tumor size.[18,19,20,21]

Breast MRI

MRI (Magnetic Resonance Imaging) is a technology that uses magnets and radio waves to create detailed, 3D images of the breast tissue. Before the test may be injected through an intravenous line, in the arm, with a contrast solution (dye). The contrast solution will allow potential cancerous breast tissue to show more clearly. Radiologists are able to see areas that could be cancerous because the contrast tends to be more concentrated in areas of cancer growth.[21,22,23]

Ultrasound

Sometimes a breast ultrasound is ordered in addition to a mammogram. An ultrasound can demonstrate fluid-filled cysts that are not cancerous. Ultrasounds may also be recommended for routine screening tests in some women at a higher risk of developing breast cancer.[21,22,23]

Diagonosis Delay and Prognosis

The diagnosis of breast carcinoma is often held up in young age women, it results in their first appearance with more advanced illness. The delays are induced primarily by the younger women themselves, as they are often more careless about and aware of breast cancer and by medicos, who have less suspicion of this disease in young age women. Current guidelines for breast cancer screening recommend mammograms for women > 40 or > 50 years of age. Mammograms in young women have a markedly lower sensibility for breast cancer due to the more incidence of dumb breasts in this age group. Diagnosis is also perplexed by many physiological changes and parenchymal growth occurring during periods of pregnancy and lactation.[13]

Biological Characteristics of Young Age Breast Cancer

Breast tumor biology was to be more extensive in women with YABC than in elderly premenopausal women, with the young women having many factors linked with an unfavorable prognosis, including high growth rates, disease of grades 3 and 4 and Estrogen Receptor (ER) negativity. A report from recent study of the Korean Breast Cancer Society found that T-stage and the incidence of lymph node involvement were importantly higher and the hormone receptor expression was lower in younger age patients than in elderly women of age group ≥ 35 but < 50 years. Immunities to chemical assays also showed higher Ki-67 expression in tumors from younger than older patients.[9,10,11,13]

Prevention

There is no way to prevent breast cancer. However certain lifestyle decisions can significantly reduce the risk of breast cancer including- avoiding excessive alcohol consumption, getting healthy diet, maintaining a healthy BMI.[10,12,13]

Management

Breast Cancer Awareness

The viewpoint for women with breast cancer is improving invariably. Due to raised awareness in society, chances for early detection, and advancement in treatment, survival rates go forward to mount. There are many organizations that support Breast Cancer Awareness Month and provide assistance within early detection plans. Organizations also put together breast cancer fundraisers such as walks and events that support breast cancer research and help fund patients with socio-economic disadvantages.[1,2,13]

Surgery

The primary means of local and regional breast cancer treatment remains surgical intervention. During the first half of the 20th century, women diagnosed with breast cancer were commonly treated by radical mastectomy, as first described by William Stewart Halsted in 1894. Breast Conservation Surgery (BCS) was initiated by Fischer et al. and Veronesietal reported that endurance with lumpectomy and radiation was tantamount to that with mastectomy in the management of early breast cancer. Ameliorated breast cancer screening leads in diagnoses of nonpalpable cancers, demanding the development of localization approach for surgical maanegment.[13]

Chemotherapy

Adjuvant chemotherapy after definitive surgery is generally recommended for patients with disease at high risk of recurrence. The following clinic pathologic characteristics may be indications for chemotherapy: ER-, PR-, and HER2-negative; HER2-positive; larger tumor size; and positive lymph nodes. For patients with negative results for lymph nodes and ER-positive tumors, RNA-based genomic testing can be used to better estimate the risk of a distant recurrence as well as to identify patients who will benefit most from chemotherapy. Genomic testing may also be considered for patients who have a limited number of positive lymph nodes after SNLB or axillary dissection to determine whether chemotherapy is indicated. For patients with high-risk disease, cytotoxic therapy should include both an anthracicline and a taxane. For low-risk disease, anthracyclines are more commonly omitted. The decision to use chemotherapy should be based on a balance of the potential survival benefit with the patient's comorbidities and risk for complications.[13]

Therapy for Metastatic Disease

Because metastatic disease is not considered curable, the goal of therapy in the setting of metastatic disease is to extend life while minimizing symptoms or side effects. Patients with ER- or PR-positive and HER2-negative breast cancer usually receive endocrine therapy several times before being placed on single-agent chemotherapy. Recent data also support the addition of palbociclib, an oral inhibitor of cyclin-dependent kinases 4 and 6, to first-line letrozole and second-line fulvestrant in patients with ER-positive metastatic disease. Patients with HER2-positive metastatic breast cancer should receive a taxane along with trastuzumab and pertuzumab as first-line therapy.[13]

Radiation

Prospective randomized trials have confirmed that long-term mortality from breast cancer and overall patient survival are comparable for BCS plus radiation treatment and for mastectomy. BCS plus radiation treatment is also associated with very high local control rates (90%-95%) in the preserved breast within 10 y from treatment; these rates are comparable to those obtained with mastectomy, with most women having a good or excellent cosmetic

result. The low rates of local recurrence in the modern era are due to progress in the multidisciplinary care of breast cancer: treatment of disease at an earlier stage because of detection by screening; improved imaging enabling appropriate patient selection for breast conservation; improved surgical techniques and margin pathology assessment; and improved radiation techniques, which may reduce marginal miss and radiation dose escalation, with a tumor bed boost, when indicated. Additionally, chemotherapy or endocrine systemic therapies, when indicated, are in widespread use, as discussed above. Radiation also has a proven role in the treatment of stage 0 breast cancer (ductal carcinoma in situ); 90%-95% long-term local control has been achieved with improved patient selection and surgical and radiation techniques.

The past decade has seen considerable advances in the delivery of postoperative radiation that aim to optimize the treatment for each person's anatomy and reduce acute or long-term toxicity. Three-dimensional planning with a CT simulator and either field-in-field 3-dimensional conformal radiation therapy (forward planning) or intensity-modulated radiation therapy (inverse planning) has replaced the simple 2-dimensional planned breast tangents. By reducing dose no homogeneity, these advances in techniques are associated with lower rates of complications, such as acute skin desquamation, edema, late fibrosis, or negative cosmetic effects on the breast. In addition, techniques involving the prone position and deep-inspiration breath holding are now used for left-side breast cancer or larger breast size to reduce toxicity (particularly cardiac dose sparing).[13]

Mammograms

Generally, screening mammogram aren't recommended for women under age of 40 years. Nevertheless, for adult female with genetic mutations, screening can be begin as early as at age of 25 and in women with a family history of breast cancer, screening is oftentimes initiated 10 years earlier than the previous affected relative in the family. Breast MRI is usually recommended to high risk women in along with mammogram.[9,10,13]

Conclusions

Though its incidence is low, YABC has a number of clinical and biological features that should be keep in mind during management. First, its diagnosis is commonly delayed, leading in an advanced stage at diagnosing. This possibly be due to a lack of screening programs for young age women or to the pugnacity of the disease itself. Second, recurrence after treatment is importantly more frequent. Though total mastectomy is not mandatory, ensuring a sufficiently wide resection margin is desired for lumpectomy, and advance radiotherapy should be counted in local treatment of YABC. Third, systemic reoccurrence and mortality after intervention is more prevailing in younger patients than in older women, particularly in those with hormone receptor with positive breast cancer. Finally, younger women require greater psychosocial support because they experience more emotional distress and poorer quality of life than older women, before and after treatment. Younger women also require appropriate counseling and other measures regarding fertility preservation and possible pregnancy. These women must be tested for BRCA1/2 mutations to determine if they have hereditary breast cancer.

Conflict of Interest: None

References

1. Liberti MV, Locasale JW. The Warburg Effect: How Does it Benefit Cancer Cells? *Trends Biochem Sci* 2016; 41(3): 211-218.
2. American Cancer Society. Breast Cancer Facts & Figures 2011-2012. Atlanta: American Cancer Society; 2011.
3. American Cancer Society. Breast Cancer Facts & Figures 2013-2014 Atlanta: American Cancer Society; 2013.
4. Felman. What to know about cancerhttps://www.medicalnewstoday.com/articles/37136. 2018.
5. Lee HB, Han W. Unique features of young age breast cancer and its management. *J Breast Cancer* 2014; 17(4): 301-307.
6. Stewart BW, Wild C; International Agency for Research on Cancer; World Health Organization. World Cancer Report 2014. Geneva: World Health Organization; 2014.
7. American Cancer Society. Breast Cancer Facts & Figures 2011-2012. Atlanta: American Cancer Society; 2011.
8. American Cancer Society. Breast Cancer Facts & Figures 2013-2014 Atlanta: American Cancer Society; 2013.
9. Young Survival Coalition. Breast Cancer in Young Women: Statistics and Disparities. Accessed; 2019.
10. Susan G Komen Breast Cancer Foundation. Unique Issues for Young Women with Breast Cancer. Accessed; 2019.
11. American Society of Beast Surgeons Foundation. Breast Cancer in Young Women. Accessed; 2019.
12. Ahmed ST et al. Breast carcinoma in a prepubertal girl. *BMJ Case Rep* 2014; 2014: bcr2013203251.
13. McDonald ES et al. Clinical Diagnosis and Management of Breast Cancer. *Journal of Nuclear Medicine* 1-9.
14. Fuller MS, Lee CI, Elmore JG. Breast cancer screening: an evidence-based update. *Med Clin North Am* 2015; 99: 451-468.
15. Berry DA, Cronin KA, Plevritis SK et al. Effect of screening and adjuvant therapy on mortality from breast cancer. *N Engl J Med* 2005; 353: 1784-1792.
16. Pace LE, Keating NL. A systematic assessment of benefits and risks to guide breast cancer screening decisions. *JAMA* 2014; 311: 1327-1335.
17. U.S. Preventive Services Task Force. Breast cancer:

screening. http://www.uspreventiveservicestaskforce.org/Page/Topic/recommendation-summary/breast-cancer-screening. Published November 2009. Accessed November 13, 2015.

18. Lehman CD, Gatsonis C, Kuhl CK et al. MRI evaluation of the contralateral breast in women with recently diagnosed breast cancer. *N Engl J Med* 2007; 356: 1295-1303.
19. Houssami N, Turner R, Morrow M. Preoperative magnetic resonance imaging in breast cancer: meta-analysis of surgical outcomes. *Ann Surg* 2013; 257: 249-255.
20. Houssami N, Turner R, Macaskill P et al. An individual person data meta-analysis of preoperative magnetic resonance imaging and breast cancer recurrence. *J ClinOncol* 2014; 32: 392-401.
21. Berg WA, Gutierrez L, NessAiver MS et al. Diagnostic accuracy of mammography, clinical examination, US, and MR imaging in preoperative assessment of breast cancer. *Radiology* 2004; 233: 830-849.
22. Dorn PL, Al-Hallaq HA, Haq F et al. A prospective study of the utility of magnetic resonance imaging in determining candidacy for partial breast irradiation. *Int J RadiatOncolBiol Phys* 2013; 85: 615-622.
23. Xu G, Zhao L, He Z. Performance of whole-body PET/CT for the detection of distant malignancies in various cancers: a systematic review and metaanalysis. *J Nucl Med* 2012; 53: 1847-1854.