



BREAST CANCER AND DIETARY REGIMEN: A REVIEW

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Abstract

Breast cancer is abnormal or uncontrolled growth of the breast cells. Breast cancer affects 0.5-2% of the population. It characterized by benign or malignant. A cancerous tumour is malignant meaning it can grow and spread to other parts of the body. The greatest disadvantage in the presently available potent chemotherapy drugs lies in their toxicity and reappearance of symptoms after discontinuation. To avoid harmful foods and cancer preventive dietary regimen used day to day life and the prevent breast cancer. The aim of the review is to update information on breast cancer including Risk factor, Epidemiology, Types, Stages, Spreads, Symptoms, Diagnosis, Side effects of Allopathic anti-cancer treatment and importance of dietary regimen for the prevention of breast cancer. The present review also focuses on the dietary regimen and avoid harmful foods are follow in the prevention of breast cancer.

Keywords

Breast cancer, Risk factor, Classification, Dietary regimen.

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INTRODUCTION

The breast is made up of different tissues, ranging from very fatty tissue to very dense tissue within this tissue is a network of lobes. Each lobe is made up of tiny. Tube-like structures called lobules that contain milk glands. Tiny ducts connect the glands lobules, and lobes carrying milk from the lobes to the nipple. The nipple is located in the middle of the areola. Which is the darker area that surrounds the nipple. Blood and lymph vessels also run through the breast. Blood nourishes the cells the lymph system drain bodily waste products. The lymph vessels connect to lymph nodes. the tiny bean-shaped organs that help fight infection.

BREAST CANCER RISK FACTOR :

Age: The of developing breast cancer increase as a women ages, with most cancers developing in the women older than 50

Personal history of breast cancer: A women who have breast cancer in 1 breast has a higher risk of developing a new cancer in the either breast.

Family history of breast cancer: Breast cancer may run in the family if your family has 1 or more of the following characteristics.

First –degree relatives, such as mothers, sisters, and children, who have been diagnosed with breast cancer or ovarian cancer, especially before age 50. If 2 first-degree relatives developed breast cancer. The risk is 5 times the average risk. Many close relatives who have been diagnosed with breast cancer or ovarian cancer. especially before age 50. close relatives include grand parents, aunts and uncles, nieces and nephews, grand children and cousins. Family members who developed breast cancer in the both breasts. A male relative in developed breast cancer. It is certain how much a women's risk of breast cancer is increased when a man in the family has breast cancer, an less it is due to an inherited mutation. If a man with in a family has developed breast cancer or a woman has developed breast cancer at an early age or has developed ovarian cancer. that your family causes an inherited breast cancer genetic mutation such as BRCA1 & BRCA2. When looking at family history, it also important to consider, your father's side is equally important as your mother's side in determining your personal risk for developing breast cancer.

Genetic testing: Through blood test for known mutations strongly increase the risk of both ovarian and breast cancer Therefore women diagnosed with hereditary ovarian cancer caused by a BRCA gene mutation has an increased risk of breast cancer with did not inherit at BRCA1 or BRCA2 mutation generally do not have a higher risk of ovarian cancer. **Early menstruation and late menopause:** Women who begin menstruating before ages 11 or 12 went through menopause after age 55 have a higher risk of breast cancer.

This is because their breast cells has been exposed to oestrogen and progesterone for a longer time.

Timing of pregnancy: Women who had first pregnancy after age 35 or who have never had a full term pregnancy have a higher risk of breast cancer.

Hormone replacement therapy after menopause: Using hormone therapy with both estrogen-progesterone after menopause often called post menopausal hormone therapy or hormone replacement, with in the past 5 years or for several years. Increases a women's risk of breast cancer.

Oral contraceptive or with control pills: Some studies suggest that oral contraceptives slightly increase the risk of breast cancer.

Race and ethnicity: Breast cancer is the most common cancer diagnosis in women, other the skin cancer regardless. Of race while women are more likely to develop breast cancer. The black women, but among women younger than 45, the disease is more common in black women than in white women.

Atypical hyperplasia of the breast: This diagnosis increased the risk of developing breast cancer in the future. It is characterized by abnormal, but not cancerous, cell found in a biopsy of the breast.

LCIS: This diagnosis refers to abnormal cells found in the lobules or glands of the breast. LCIS in the 1 breast increases risk of developing invasive breast cancer either breast in the future.

Breast density: Dense breast tissue may make it more difficult to find a tumour on standard imaging tests. Such as mammography breast density may be higher levels of estrogen, rather than a separate risk factor. Researches are looking at whether lowering breast density might also decrease the risk of breast cancer.

Life style factor: Weight: postmenopausal women who are over weight or obese have an increased risk of breast cancer.

Physical activity: Decreased physical activity is associated with an increased risk of developing breast cancer. Regular physical activity may protect against breast cancer.

Alcohol: current research suggests that having more than 1 to 2 alcoholic drinks including beer, wine and spirits per day raises the risk of breast cancer.

Food: specific foods avoid eg: coffee, non veg-pork.

Socioeconomic factor: This is likely due to multiple factors, including life style factor, other health condition obesity and tumour biopsy. **Radiation exposure at a young age:** Exposure to ionizing radiation at a young age may increase a women's risk of breast cancer. For example, therapeutic radiation to the chest for Hodgkin lymphoma may increase breast cancer risk.

EPIDEMIOLOGY: Breast cancer is the leading cause of cancer death among women across the world. In India 60% of breast cancers are detected at an advanced stage 81% of women with breast cancer are over the age of 50 at the time of diagnosis. According to Globolan Project 2012 (International agency for research on cancer) estimated cancer in incident Mortality and prevalence world wide in 2012. 144,937 Women have newly detected breast cancer. 70218 Women died of breast cancer.

Breast cancer care in india:

The current scenario and challengers for future
-Gaurav

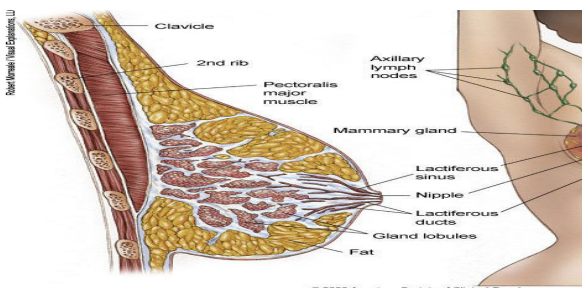
Agarwal & Pooja Ramakant

Over 100,000 new breast cancer patches are estimated to be diagnosed annually in india. The incidence of this disease has been consistently increasing, and it is estimated it has risen by 50% between 1965 and 1985. The rise in the incidence of 0.5-2% per annum has been seen across all regions of india and in all age groups but more so in the younger age groups(<45years). In urban registries of India – Breast cancer constitutes >30% of all cancers in female. Current year estimates for breast cancer:

The American cancer society is estimated for Breast cancer in the united states for 2019 are, About 268,600 new cases of invasive breast cancer will be diagnosed in women. About 62,930 new cases of carcinoma in situ (CIS) will be diagnosed. About 41,760 women will die from breast cancer.

Trends in breast cancer death: Breast cancer is the second leading causes of cancer death in women. The chance that women will die from breast cancer is about 1 in 38.

Breast cancer survivors: At this time there are more than 3.1 million breast cancer survivors in the united states. This woman still being treated and those who hard completed treatment. It is estimated that 42,260 deaths. (41,760 women and 500 men) from present cancer will occur this year.



TYPES OF BREAST CANCER:

Breast cancer can be invasive or non-invasive type. Invasive breast cancer spreads into surrounding tissues. Non invasive breast cancer does not go beyond the milk ducts or lobules in the breast. Most breast cancers start in the ducts or lobes and are called ductal carcinoma or lobular carcinoma. Ductal Carcinoma: These cancers start in the cells lining the milk ducts and make up the majority of the breast cancers.

Ductal carcinoma in situ (DCIS): This is cancer that is located only in the duct. Invasive or infiltrating ductal carcinoma: This is cancer that has spread outside of the duct.

Lobular Carcinoma: This cancer that starts in the lobules. Invasive lobular carcinoma: This is cancer that has spread outside of the lobules.

Less common types of breast cancer include Medullary carcinoma, Mucinous carcinoma, Tubular carcinoma, Metaplastic carcinoma, Papillary carcinoma.

Inflammatory breast cancer is a faster-growing type of cancer that accounts for about 1% to 5% of all breast cancers.

Paget's disease is a type of cancer that begins in the ducts of the nipple. Although it is usually in situ it can also be invasive cancer.

BREAST CANCEROUS SUB TYPE: There are 3 main subtypes of breast cancer that are determined by doing a specific test on a sample of the tumor.

Hormone receptor positive, Her-2positive, Triple – negative.

STAGES OF BREAST CANCER:

Stage 0: Stage zero (0) describes a disease that is only in the ducts and lobules of the breast tissue and has not spread to the surrounding tissue of the breast. It is also called noninvasive cancer (Tis, N0, M0).

Stage IA: The tumor is small, invasive, and has not spread to the lymph nodes (T1, N0, M0).

Stage IB: Cancer has spread to the lymph nodes and cancer in the lymph node is larger than 0.2 mm but less than 2 mm in size. There is either no evidence of a tumor in the breast or the tumor in the breast is 20 mm or smaller (T0 or T1, N1, M0).

Stage IIA: Any 1 of these conditions:

There is no evidence of a tumor in the breast, but cancer has spread to 1 to 3 axillary lymph nodes. It has not spread to distant parts of the body. (T0, N1, M0). The tumor is 20 mm or smaller and has spread to the axillary lymph nodes (T1, N1, M0). The tumor is larger than 20 mm but not larger than 50 mm and has not spread to the axillary lymph nodes (T2, N0, M0).

Stage IIB: Either of these conditions:

The tumor is larger than 20 mm but not larger than 50 mm and has spread to 1 to 3 axillary lymph nodes (T2, N1, M0). The tumor is larger than 50 mm but has not spread to the axillary lymph nodes (T3, N0, M0).

Stage IIIA: The cancer of any size has spread to 4 to 9 axillary lymph nodes or to internal mammary lymph nodes. It has not spread to other parts of the body (T0, T1, T2 or T3, N2, M0). Stage IIIA may also be a tumor larger than 50 mm that has spread to 1 to 3 axillary lymph nodes (T3, N1, M0).

Stage IIIB: The tumor has spread to the chest wall or caused swelling or ulceration of the breast or is diagnosed as inflammatory breast cancer. It may or may not have spread to up to 9 axillary or internal mammary lymph nodes. It has not spread to other parts of the body (T4; N0, N1 or N2; M0).

Stage IIIC: A tumor of any size that has spread to 10 or more axillary lymph nodes, the internal mammary lymph nodes, and/or the lymph nodes under the collarbone. It has not spread to

DIAGNOSIS OF BREAST CANCER:

Screening: Mammography is the best tool to have to screen healthy women for breast cancer, 3D Mammography, USG, MRI.

Imaging tests: Diagnostic mammography is similar to screening mammography except that more pictures of the breast are taken. Ultrasound uses sound waves to create a picture of the breast tissue, MRI uses magnetic fields, not x-rays, to produce detailed images of the body. **Biopsy:** A biopsy is the removal of a small amount of tissue for examination under a microscope.

Fine needle aspiration biopsy: This type of biopsy uses a thin needle to remove a small sample of cells.

Core needle biopsy: This type uses a wider needle to remove a larger sample of tissue.

Surgical biopsy: This type removes the largest amount of tissue

Image-guided biopsy: During this procedure, a needle is guided to the location with the help of an imaging technique, such as mammography, ultrasound, or MRI.

Sentinel lymph node biopsy: This procedure is a way to find out if there is cancer in the lymph nodes near the breast.

Analyzing the biopsy sample.

Tumor features: Examination of the tumor under the microscope is used to determine if it is invasive or in situ, ductal or lobular, and whether cancer has spread to the lymph nodes

ER and PR: Testing for ER and PR helps the type of treatment that is most likely to lower the risk of recurrence. ER and PR are often measured for DCIS as well

HER2: The HER2 status Helps determine whether drugs that target the HER2 receptor, for example, the antibody treatment trastuzumab might help treat cancer.

Grade: The tumor grade is also determined from a biopsy. Grade refers to how different the cancer cells look from healthy cells

Molecular testing of the tumor: Your doctor may recommend running other laboratory tests on a tumor sample to identify specific genes, proteins, and other factors unique to the tumor.

Blood tests: Complete blood count, Blood chemistry, Hepatitis tests.

MODERN ASPECT OF TREATMENT AND SIDE EFFECTS:

Surgery: Surgery is the removal of the tumor and some surrounding healthy tissue during an operation. Surgery is also used to examine the nearby axillary lymph nodes, which are under the arm.

Lumpectomy. This is the removal of the tumor and a small, Most of the breast remains.

Mastectomy. This is the surgical removal of the entire breast.

Lymph node removal and analysis:

Sentinel lymph node biopsy. In a sentinel lymph node biopsy, the surgeon finds and removes a small number of lymph nodes from under the arm.

Axillary lymph node dissection. In an axillary lymph node dissection, the surgeon removes many lymph nodes from under the arm. **Reconstructive (plastic) surgery:** Women who have a mastectomy may want to consider breast reconstruction. This is surgery to re-create a breast using either tissue taken from another part of the body or synthetic implants.

Implants. A breast implant uses saline-filled or silicone gel-filled forms to reshape the breast. **Tissue flap procedures,** Transverse rectus abdominus muscle (TRAM) flap, Latissimus dorsi flap, Deep inferior epigastric artery perforator (DIEP) flap, Gluteal free flap. **External breast forms (prostheses):** An external breast prosthesis or artificial breast form provides an option for women who plan to delay or not have reconstructive surgery

Radiation therapy: Radiation therapy is the use of high-energy x-rays or other particles to destroy cancer cells. **External-beam radiation therapy,** Intra-operative radiation therapy, Brachytherapy.

Therapies using medication: The types of systemic therapies used for breast cancer include:

Chemotherapy, Hormonal therapy, Targeted therapy, Immunotherapy.

Chemotherapy:

Chemotherapy is the use of drugs to destroy cancer cells. **Capecitabine (Xeloda), Carboplatin (available as a generic drug), Cisplatin (available as a generic drug), Cyclophosphamide (available as a generic drug), Docetaxel (Taxotere), Doxorubicin (available as a generic drug), Pegylated liposomal doxorubicin, Epirubicin (Ellence), Eribulin (Halaven),**

Hormonal therapy:

Hormonal therapy, also called endocrine therapy

Types of hormonal therapy:

Tamoxifen, Aromatase inhibitors (AIs), Ovarian suppression.

Targeted therapy:

Targeted therapy is a treatment that targets cancer's specific genes

HER2-targeted therapy:

Trastuzumab, Pertuzumab (Perjeta). Neratinib (Nerlynx), Ado-trastuzumab emtansine or T-DM1 (Kadcyla), Bone-modifying drugs, Bisphosphonates, Denosumab (Xgeva).

Care for symptoms and side effects :

Music therapy, meditation, stress management, and yoga for reducing anxiety and stress. Meditation, relaxation, yoga, massage, and music therapy for depression and to improve other mood problems. Meditation and yoga to improve general quality of life.

Acupressure to help with nausea and vomiting from chemotherapy.

Recurrent breast cancer:

If the cancer does return after treatment for early-stage disease, it is called recurrent cancer. When breast cancer recurs, it may come back in the following parts of the body, The same place as the original cancer. This is called a local recurrence. The chest wall or lymph nodes under the arm or in the chest. This is called a regional recurrence. Another place, including distant organs such as the bones, lungs, liver, and brain. This is called a distant recurrence or a metastatic recurrence.

SIDE EFFECTS OF MODERN ASPECT TREATMENT:

Fatigue, Head ache, Pain numbness (Peripheral neuropathy), Dental issues, Lymphedema, Musculoskeletal syndromes, Osteoporosis, Heart problems, New cancers, Cataract, Blood clots, Amenorrhea, Menopausal Symptoms, Sexual difficulties, Infertility, Memory loss.

Symptomatically natural treatment:

Pain: Garlic and Garlic milk.

Loss of Appetite and Weight: Orange, Lime, and Garlic.

Nausea and Vomiting: Ginger juice mixed with lime and mint juices.

Shortness of Breath and cough: Honey and Grapes.

Diarrhoea: Butter milk and fenugreek seeds.

Constipation: Plenty of fruits, Spinach and warm water enema.

Depression: Magnesium-rich foods.

Insomnia: Lettuce and Milk.

Sore Mouth: Garling with Lemon juice.

DIETARY REGIMEN OF BREAST CANCER:

BEET: The juice of red beet is considered beneficial in the prevention and treatment of cancer. It is one of the best vegetable juices and a rich source of natural sugar it contains sodium, potassium, phosphorus, calcium, sulphur, chlorine, iodine, iron, copper, vitB₁, B₂, niacin, B₆, C and P. This juice stimulates the liver and its detoxifying activity. Half a glass of this juice can be taken 3 times daily. Lactic acid a well balanced beet juice will markedly increase the oxygenation of the body cells. It would be advisable to extract juice both from the root and top.

CABBAGE AND OTHER CRUCIFEROUS VEGETABLES:

cabbage and other cruciferous vegetables like cauliflower and Brussel sprouts are one of the most important foods which may help immunize against breast cancer by managing oestrogen, a know promoter of this type of cancer. These vegetables quickly remove oestrogen from the body by speeding of up the metabolism of oestrogen and burning of the hormone so that less of it is available to feed cancer.

These studies indicate that specific indoles in the cruciferous vegetable accelerate a process in which the body deactivate or dispose the type of oestrogen that can promote breast cancer. In tests on women and men, the cabbage compound “turned up” oestrogen – deactivation process by about 50%. The test dose, exceeded what people would normally eat: a daily 500mgs of indole-3-carbinol, the amount in about 400gms of raw cabbage, by eating less would also burn up the estrogen to a lesser degree. It’s known that women with elevated oestrogen metabolism have lower risks of hormone-dependent cancers such as breast, uterine and endometrial cancer.

CARROT: This vegetable is one of the richest sources of beta carotene. It has been found valuable in preventing in lung cancer. The anti-cancer power of beta carotene comes from its ability to enhance immunological defenses which are very important in preventing and fighting cancer.

CITRUS FRUITS: Citrus fruits like grapefruit, lemon, lime and orange posses powerfull anti-cancer properties. Class of naturals substances like carotenoids, flavonoids, terpenes lemonade and coumarins, which indugially have neutralized powerful chemical carcinogen in animals. One analysis found that citrus fruits posses 58 known anti-cancer chemicals more than any other foods. Citrus fruits are marvelous combinations of anticancer compounds. One such anti-cancer compound is glutathione.

CURD: Curd or yogurt is a potential preventive against colon cancer. it is a rich source of vit D and calcium, both are which highly beneficial in preventive cancer.

GARLIC: Garlic is an ancient remedy for cancer. Even the father of medicine, Hippocrates prescribed garlic for this disease more than two thousand years ago. It was, however, only in the twentieth century that scientists discovered the anti-cancer properties of garlic. More than 30 different enemies of carcinogen have been identified in garlic and onions. Such compounds include diallyl sulfide, quercetin and ajoene they bock the most terrifying cancer-causing agent such as nitrosamines and aflotoxin. Garlic also help strengthen the part of the immune system, which directly fights tumours. It should thus form part of the diet of those who are a having cancer or at risk of getting it. United states during the last ten years, have conclusively proved the protective role of garlic in the diet which can fight cancer effectively. The researches tried to ascertain tha constituents in these foods which could help prevent the formations of cancer cells.

GREEN VEGETABLES: Green vegetables, especially green leafy vegetables exhibit unusual wide anti-cancer powers. Green vegetables are against the most cancers. Green vegetables such as spinach, fenugreek, dark green lettuce and broccoli, are full of many different antioxidants, including beta carotene and folic acid, as well as lutein a little-known antioxidant. Lutein may even be as powerful as bête carotene in blocking cancer.

Licorice: Liquorice, a popular spice and a flavoring agent, is credited with the properties of foods with not only help prevent

MILK: Milk, as a rich source of Vit D and calcium, is an important food which can reduce the risk of colon cancer. One reason is calcium can suppress the proliferation of surface cells. There by preventing the rapid cell growth.

OLIVE OIL: Eating too much fat has been linked with breast cancer. It was found in this study that the women who eat the most saturated fats have triple the risk of breast cancer has compared to those who eating a least. Monounsaturated fat, the type predominant in olive oil is, however, not cancer a culprit. Who eat lots of olive oil have low rates of breast cancer.

Rice: Rice possesses anti-cancer activity. Like other seeds, it contains anti-cancer protease inhibitors. The use of brown rice is especially helpful in preventing cancer.

SOYA-BEANS: This vegetable contains compounds manipulate oestrogen and also directly inhibit the growth of cancerous cells, thereby reducing the risk of breast cancer in women of all ages. One soya-bean compound, phytoestrogen is quite similar chemically, to the drug tamoxifen, which is given to certain women to help prevent breast cancer and its spread.

TOMATO: Tomato is regarded as an anti-cancer drug. Lycopene that gives its color to tomato, is the main ingredient which helps prevent cancer.

WATERMELON: This fruit being highly concentrated in lycopene, is also regarded as an anti-cancer food, which can help prevent cancer.

WHEAT-BRAN: One way to reduce chances of breast cancer is to curtail oestrogen levels in the blood. This can be achieved by taking the Wheat-Bran cereals. Wheat-Bran has specific properties lower dramatically, the circulating levels of cancer-promoting oestrogen in the blood.

GINSENG: Ginseng can be used beneficially in treating cancer as a supportive treatment and in over coming the after effects of medical treatment.

HOLY BASIL (Ocimum Sanctum): Holy Basil sacred planned of India, known from the Vedic period, has many medical virtues. It is highly beneficial in over-coming stress arising from the cancer and the after effects of medical treatment.

INDIAN GOOSEBERRY (Emblica Officinalis): Vitamin C can greatly help in preventing and controlling cancer. Indian gooseberry, which is one of the richest- known sources of Vitamin C can thus be beneficially used in the fight against the cancer

LEAVES OF PAPAYA (Carica papaya): Success in the treatment of cancer. It found a chemical component in the papaya tree that is "one million times stronger than the strongest anti-cancer medicine".

OTHER FOODS: Certain other foods have also been found to contain anti-cancer activities and are thus valuable, in preventing and controlling cancer. These include cucumber, flax seeds, ginger, mint, oats, greens peppers, potato, turmeric, and whole wheat.

HARMFUL FOODS THAT PROMOTE CANCER:

COFFEE: Most of the coffee's pharmacological impact comes from its high concentration of caffeine, a psychoactive drug of great power, and the most active alkaloid principle in it. Research studies have shown that coffee drinking has potential health hazards. They have linked it to several serious diseases including cancer.

FAT: Scientific studies show that people with higher rates of cancer, consume excessive animal fat in their daily diet. Additionally, widely used omega-6 polyunsaturated fats, such as corn oil, greatly increase cancer rate in those exposed to a carcinogen.

FLESH FOODS: Who eat little or no meat, suffer far less from cancer than the average meat-eating causing cancer. Of all meats, pork is especially harmful it has been noted that in places where pork is the principal diet, cancer seems to be most prevalent.

EXCESSIVE SALT: Many nutritionists believe that salt is too freely used in the ordinary diet and, could be one of the main causes of cancer. Most cancer patients are, therefore, prescribed salt-free diets.

SUGAR: Sugar is also considered harmful and its excessive consumption can lead to the development of cancer. The excessive consumption of sugar with cancer by called as "the appetite of tumours for sugar."

CONCLUSION

Breast cancer can reduce, while we follow the dietary regimen correctly in day to day life regularly and avoid harmful foods. The review describes about the importance of dietary regimen and effects of harmful foods to prevent breast cancer.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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