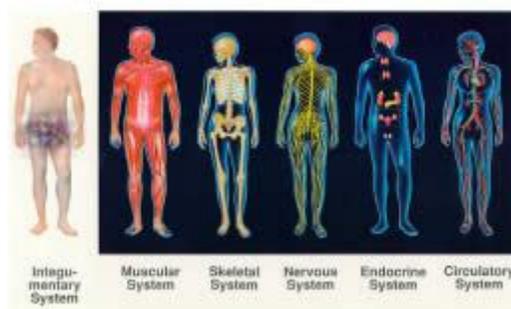


Breast Cancer

Cancer, one word common to the word and one word no one wants to hear. There are many forms of cancer but of particular interest is stomach cancer. So what does it mean when you or someone you know has been diagnosed with cancer? Where does it come from? What is the cause and how can it be cured? According to the National Cancer Institute, in 2009 there were 1, 4479, 350 new cases of cancer and 562,340 deaths related to cancer. 192,370 cases were related to cancer of the breast which leads to 40, 170 deaths annually. For non-medical people understanding the information and physiology regarding cancer can be overwhelming. Understanding the basics of the human body and the cells that make up the body is a start at understanding how cancer forms.

The proper medical definition for cancer is “an abnormal growth of cells which tend to proliferate in an uncontrolled way and in some cases, to metastasize.” (Medicine Net.com) This definition can be clarified by beginning with the basic make up of the human body. Cells are the smallest living unit, cells make the tissue in our bodies, tissues make the organs in our bodies, the organs create our organ systems and all of the organ systems together create the human body.



Organ systems formed from cells and tissues.

(Photo provided by Disease Education.Com *Cancer*)

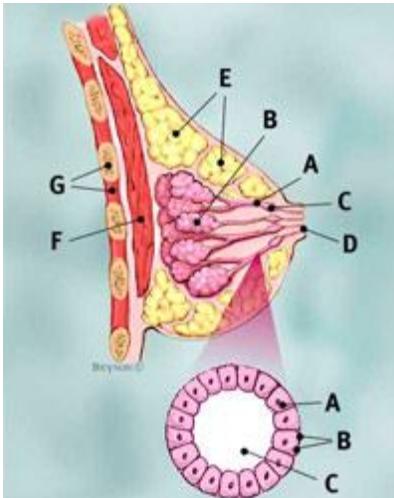
To put it simply cells are what create or begin who we are and maintain our proper functioning. There are as many as a trillion cells in the body and each cell in the body has a specific function. For example, the red blood cells are essential for carrying nutrients to other cells to live on or for transporting carbon dioxide to the lungs to be eliminated from the body. Without the function of just this one type of cell our bodies would cease to survive. Not only are there approximately a trillion cells in our bodies these cells are reproducing or functioning, at a minimum, of every millisecond.

Cancer cells can grow from any cell in the body. According to the National Cancer Institute there are more than 100 different types of cancer and are divided into 4 categories; carcinoma, sarcoma, leukemia, lymphoma and myeloma. Brain cancer, prostate cancer, breast cancer and lung cancer are common to most people. However, cancer can develop in the stomach, esophagus and even the eye. Any organ or any tissue that makes up an organ can be susceptible to cancer cells. So what are cancer cells as compared to normal cells?

Referring back to the basic physiology of the body, we know that cells make tissues, tissues make organs, organs make organ systems and the entire organ system makes the human body. Each organ system depends on another organ system. If any of these systems was affected by cancerous cells it would create an internal imbalance in our bodies. The unaffected organ would have to compensate, but how long can it keep up? With a basic understanding of the cells within the body we can look deeper into the etiology, pathophysiology, symptoms, prognosis and treatment of breast cancer.

According to the National Institute of Cancer, breast cancer affects at least 1 in 8 women in the United States. The term breast cancer refers to a malignant tumor that develops from cells in the breast. It can begin in one of two areas: the cells of the lobules which are the milk-producing glands or the ducts which are the passages that drain the

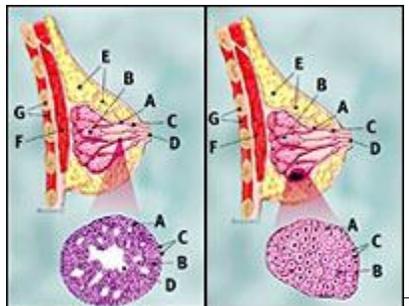
milk from the lobules to the nipple. A little less common cancer cells can also begin in the stromal tissues which are the fatty and fibrous connective tissue of the breast.



Lobules and ducts of the breast

(Photo provided by Breast Cancer.org)

Over a period of time these cancer cells spread within the breast or even worse to the lymph nodes in the underarm. Once the breast cancer has spread to the lymph system this is a pathway for the cancer to travel to other areas of the body. As stated there are two main types of breast cancer; ductal carcinoma and lobular carcinoma. Breast cancer is also considered to be invasive, meaning it has spread to other tissue, or noninvasive meaning it has not spread. Noninvasive is considered to be “in situ”.



Ductal Carcinoma/Lobular Carcinoma

(Photo provided by Breast Cancer.org)

According to the National Institute of Cancer the Stages of Breast Cancer are as follows:

- **Stage I** - In stage I, cancer has formed. The tumor is 2 centimeters or smaller and has not spread outside the breast.
- **Stage IIA**- no tumor is found in the breast, but cancer is found in the axillary lymph nodes or the tumor is 2 centimeters or smaller and has spread to the axillary lymph nodes; or the tumor is larger than 2 centimeters but not larger than 5 centimeters and has not spread to the axillary lymph nodes.
- **Stage IIB** In stage IIB, the tumor is either: larger than 2 centimeters but not larger than 5 centimeters and has spread to the axillary lymph nodes; or larger than 5 centimeters but has not spread to the axillary lymph nodes.
- **Stage IIIA** In stage IIIA: no tumor is found in the breast. Cancer is found in axillary lymph nodes that are attached to each other or other structures, or cancer may be found in lymph nodes near the breastbone; or the tumor is 2 centimeters or smaller. Cancer has spread to axillary lymph nodes that are attached to each other or to other structures, or cancer may have spread to lymph nodes near the breastbone; or the tumor is larger than 2 centimeters but not larger than 5 centimeters. Cancer has spread to axillary lymph nodes that are attached to each other or to other structures, or cancer may have spread to lymph nodes near the breastbone; or the tumor is larger than 5 centimeters. Cancer has spread to axillary lymph nodes that may be attached to each other or to other structures, or cancer may have spread to lymph nodes near the breastbone.
- **Stage IIIB** In stage IIIB, the tumor may be any size and cancer: has spread to the chest wall and/or the skin of the breast; and may have

spread to axillary lymph nodes that may be attached to each other or to other structures, or cancer may have spread to lymph nodes near the breastbone. Cancer that has spread to the skin of the breast is inflammatory breast cancer. See the section on Inflammatory Breast Cancer for more information.

- **Stage IIIC** In stage IIIC, there may be no sign of cancer in the breast or the tumor may be any size and may have spread to the chest wall and/or the skin of the breast. Also, cancer: has spread to lymph nodes above or below the collarbone; and may have spread to axillary lymph nodes or to lymph nodes near the breastbone. Cancer that has spread to the skin of the breast is inflammatory breast cancer. See the section on Inflammatory Breast Cancer for more information.
- **Stage IIIC** breast cancer is divided into operable and inoperable stage IIIC. In operable stage IIIC, the cancer: is found in ten or more axillary lymph nodes; or is found in lymph nodes below the collarbone; or is found in axillary lymph nodes and in lymph nodes near the breastbone. In inoperable stage IIIC breast cancer, the cancer has spread to the lymph nodes above the collarbone.
- **Stage IV** In stage IV, the cancer has spread to other organs of the body, most often the bones, lungs, liver, or brain.



Stage size of cancer tumors
(Photo provided by Breast Cancer: Medline Plus)

The stages of breast cancer can be difficult and confusing to understand. But before understanding how the cancer is staged the symptoms, risk factors and prevention should be known. Some typical symptoms of breast cancer according to the American Cancer Society are:

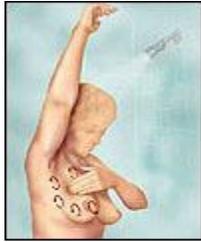
1. Swelling in all or part of the breast
2. Skin irritation or dimpling
3. Breast pain
4. Nipple pain or the nipple turning inward
5. Redness, scaliness or thickening of the nipple or breast skin
6. Nipple discharge other than milk
7. A lump in the underarm area

In most cases the first sign of breast cancer is a new lump or mass in the breast upon palpation. Typically a lump that is painless, hard and has uneven edges is more likely to be cancer, but they can also be tender, soft and rounded. Any lump felt on the breast should be immediately evaluated by a physician.

According to the National Institute of Health the risk factors for breast cancer include age and gender, with the incidence increasing with age and women more typically than men, family history of breast cancer, genes and an early menstrual cycle. Other factors are alcohol use, childbirth, women who have taken diethylstilbestrol, hormone replacement therapy, obesity or past radiation of the chest area. Having any of these risk factors is an indicator for frequent screening and testing.

Breast cancer screening is the checking of a breast for cancer before there are signs or symptoms of the disease. Typical screenings include a mammogram which is an x-ray of the breast, clinical breast exam which is the palpation of the breast for lumps by a physician, and a self-exam which is the palpation of the breast at home. If a lump is detected further testing should be conducted. These tests include a breast MRI, a breast

ultrasound, a breast biopsy, a CT scan, a lymph node biopsy or a PET scan. These tests determine the staging of the cancer which helps to guide future treatments and follow up.



Self breast exam

(Photo provided by Breast Cancer.org)



Mammogram

(Photo provided by Breast Cancer.org)

Treatment of breast cancer includes chemotherapy, radiation therapy and/or surgery to remove the cancerous tissue. A new treatment which uses anticancer drugs that target certain changes in a cell is called biologic therapy. With the rising numbers of patients being diagnosed with breast cancer the best treatment is prevention. Get screened for breast cancer regularly, control weight and exercise, know the family history of breast cancer, and limit the use of alcohol.

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