X-Plain™
Breast Cancer
Reference Summary

The risk of breast cancer among Asian Americans living in the U.S. is relatively low compared to Caucasian women. However, there is concern that the risk of breast cancer rises for Asian American women after migration to the U.S.

In the general population, 1 of every 8-10 women will be diagnosed with breast cancer in their lifetime.

This Reference Summary will help you understand the diagnosis and treatment options of breast cancer.

Cancer and its Causes

The body is made up of very small cells

Normal cells in the body grow and die in a controlled way. Sometimes cells keep dividing and growing without normal controls, causing an abnormal growth called a tumor.

If the tumor does not invade nearby tissues and body parts, it is called a benign tumor, or non-cancerous growth. Benign tumors are rarely life threatening

If the tumor invades and destroys nearby cells, it is called a malignant tumor, or cancer. Cancer can sometimes be life threatening.

Cancerous cells may also spread to different parts of the body through blood vessels and lymph channels.

Lymph is a nearly clear fluid produced by the body that drains waste from cells. It travels through special vessels and bean-shaped structures called lymph nodes.

Cancer treatments are used to kill or control abnormally growing cancerous cells.

Cancers in the body are given names depending on where the cancer started. Cancer that begins in the breasts will always be called a breast cancer, even if it has spread to another place such as the liver, bones, or brain.

Although doctors can locate where a cancer started, the cause of a cancer in a patient cannot usually be identified.

Cells contain hereditary or genetic materials. This genetic material controls the growth of the cell.

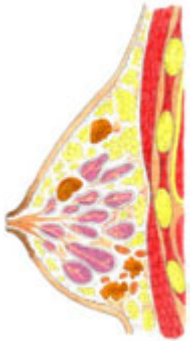
Cancer always arises from changes that occur in these genetic materials. When the genetic material in a cell becomes abnormal, it can lose its ability to control its growth.

These sudden changes in genetic materials can occur for a variety of reasons. These changes may be inherited from parents, or may occur because of exposure to viral infections, drugs, tobacco, chemicals, or other factors.

Cancer is not contagious. You cannot catch it from someone who has it. You cannot get sick if you are near someone with cancer or come into contact with their symptoms.

Breast Anatomy

The breasts contain fatty tissue and glands.



The glands are responsive to many of the female hormones, such as estrogen and progesterone. Hormones are natural substances in the body that help regulate body functions.

Female hormones help regulate functions like menstruation and pregnancy.

The glands are responsible for making milk after a pregnancy.

The milk is then secreted to the outside through special ducts that open up in the nipple.

The lymphatic system normally drains excess breast fluid into the lymph nodes in the axilla or armpit. From there, it goes back into the blood stream.

The breasts lie over important muscles that allow the movement of the arm, as well as muscles involved in breathing.

Breast Cancer

Breast cancer may originate from either the glands or the ducts of the breast.

If cancer originates from the glands, it is called lobular carcinoma. The glands produce milk.

When cancer occurs in the ducts of the breast it is known as ductal carcinoma.

When the cancer extends beyond its immediate surroundings, it is known as “infiltrating” or “invasive” cancer.

Cancerous cells that have not spread out of the lobules or ducts are called carcinoma “in-situ”.

Breast cancer may involve more than one member of a family; this is usually called familial breast cancer. There might be some hereditary and genetic cause for this type of breast cancer. Recent genetic advances have allowed the detection of some of these genes.

Women with familial breast cancer can definitely benefit from genetic counseling and possibly genetic testing for prevention.

Some people believe that women who don’t breast-feed often get breast cancer. However, breast-feeding is not a substitute for regular exams. Women who breast-feed can get breast cancer.

Signs and Symptoms

Early cancer of the breast usually has no symptoms.

Later, as the cancer grows, it may cause a lump that can be felt in the breast.

Sometimes the skin overlying the tumor becomes coarse and wrinkled. This is known

as “peau d’orange” in French or “orange peel” appearance.

Discharge from the nipple can also be a sign of breast cancer.

Most breast cancer cases are discovered either by self-exam or mammogram. Some breast cancers can be felt as abnormal lumps, some cannot. This is why mammography is useful, as it may detect cancers not felt as abnormal lumps. But a normal mammogram does not imply that there is no cancer. If the patient or physician feels a lump, this must be biopsied (tested).

Diagnosis

When breast cancer has been detected, an operation to take the tumor out and to diagnose the cancer usually follows.

During such an operation, the surgeon may check the lymph nodes in the axilla for the presence of cancer. A pathologist looks at the tissue taken out at the time of surgery and determines whether or not the tumor is cancerous.

If the lump is cancerous, other more specialized pathological tests may be done on the tissue.

Your surgeon and oncologist may ask you to have more radiological tests.

Some of these tests will show how fast cancerous cells multiply compared to normal cells. Sometimes, female hormones, such as estrogen and progesterone, can affect the cancerous cells and there are tests to see if that occurs. These tests are important to know the best treatment options.

Radiological Tests may include a bone scan and different CAT scans to check whether the cancer has spread outside the breast and the axilla area.

Staging

Each stage will indicate extent of the cancer and to which parts of the body the cancer has spread.

To know the stage, surgical procedures are needed to determine the type of cancer and if the cancer has spread to lymph nodes.

Treatment suggestions will be based on the stage of the cancer.

Stages are usually described using the numbers 0-4; a lower number indicates an early stage of cancer.

Some stages may be divided into sub-stages. These sub-stages are given a letter designation.

For example there is a stage 3A and a stage 3B. A stage 3B is more advanced than 3A.

Stage “ 0 “ breast cancer has not spread from the duct of lobule (Carcinoma in-situ).

When cancer originates from a lobule, it is called lobular carcinoma.

When cancer originates from a duct, it is called ductal carcinoma. Ductal carcinoma is mostly detected in stage “0 “.

Currently mammograms are able to detect 30-40% of ductal carcinoma.

Stage 1 breast cancer measures less than 2 cm in size and has not spread outside of the breast.

Stage 2 breast cancer can be one of the following:

- Less than 2 cm in size but with a few lymph nodes in the axilla involved.
- 2 to 5 cm in size but without the lymph nodes in the axilla involved.

Stage 3A breast cancer can be one of the following:

- Less than 5cm in size and has spread to the deep axillary lymph nodes.
- 5cm or bigger in size and has only spread to the axilla lymph nodes.

Stage 3B breast cancer can be one of the following:

- Cancer involves the skin or the chest wall.
- Cancer has spread to lymph nodes along the inner side of the breast along the breast bone.
- Cancer has spread to other lymph nodes near the breast, around the collarbone area or below the neck.

A stage 4 breast cancer has spread to other organs such as the bones, liver or brain.

Surgery

Most breast cancers are taken out surgically. The extent of the operation depends on the size and location of the tumor and whether or not the lymph nodes in the axilla are involved.

Breast cancer operations have two main goals. The first is to take the whole tumor out without leaving any tumor behind in the breast area.

The second goal is to check the lymph nodes of the axilla to make sure that the tumor has not spread to them. If it has spread to the lymph nodes, the surgeon may want to determine how many lymph nodes are involved with the tumor.

Since taking a lot of axilla lymph nodes out surgically can lead to swelling of the arm, known as lymphedema, new techniques are being developed to take out only a few important lymph nodes.

A few hours before the surgery, the surgeon would inject near the tumor a special blue dye or a safe radio-active dye in order to differentiate the tissues.

During the surgery, the surgeon takes the cancer out and is able to find the lymph nodes that have picked up the dye. The first lymph node to pick up the dye is known as “sentinel node”.

A lumpectomy is an operation aimed at taking only the cancerous lump, with some biopsies of the lymph nodes of the axilla. Lumpectomy is the most common form of breast cancer surgery today.

Radiation therapy is usually given after this type of operation.

A partial or segmental mastectomy would remove more areas of the breast than a lumpectomy. A superficial layer of muscles underneath could also be removed. After the lymph nodes are removed to check if the cancer has spread, radiotherapy would also be necessary.

A total or simple mastectomy aims at taking the whole breast out, along with some of the lymph nodes in the axilla.

A modified radical mastectomy aims at removing the breast, some of the underlying covering of the muscles, and possibly part of the muscle.

Some of the lymph nodes of the axilla are also taken out during this type of operation.

The radical mastectomy is used to remove breast, all underneath muscles, and all of the lymph nodes in the breast area. This method of surgery was thought to be the best for many years but is seldom used now.

Additional Treatment

After the surgery, your doctor may recommend one or more types of therapy to help prevent the cancer from coming back.

Common additional therapies include radiation therapy and chemotherapy.

Radiation therapy is a series of x-ray treatments that are intended to free the breast or lymph nodes of any cancer cells that might be still present. It usually takes about 5 to 6 weeks of brief treatments to complete.

Radiation therapy is usually given:

- After a lumpectomy
- After a mastectomy
- If the tumor is larger than 5 centimeters
- If a high number of involved lymph nodes were found
- If the tumor was close to the chest wall muscles or rib cage.

Hormonal therapy and chemotherapy are medications that may be recommended after surgery to help prevent the cancer from coming back. They may be given through an IV into the bloodstream or orally.

Hormonal therapy is usually given if the cancer was found to have estrogen and/or progesterone receptors. The presence of these receptors generally means that these hormones promote the growth of the cancer.

Hormone therapy with Tamoxifen or similar drug can block the effect of progesterone and estrogen. It may be recommended that pre-menopausal women have their ovaries removed so they stop producing estrogen and progesterone after breast cancer surgery.

Chemotherapy is usually given in cases where the breast tumor was large or it had already spread to the lymph glands or other organs in the body. Sometimes chemotherapy is given to decrease the risk of recurrence even if the cancer has not spread beyond the breast.

There are many different situations where chemotherapy may be recommended. Your oncologist can discuss the possibilities with you and what he or she thinks is the most appropriate option for you.

Clinical experiment would also be another treatment option, this is a testing method to find new treatment methods. These experiments are usually thought to be at least as effective as currently available treatments. This treatment may be suggested instead of some of the above-mentioned treatments.

Occasionally, at the hospitals, patients may have an opportunity to participate in a clinical experiment. The patient has a choice to either participate or not participate.

Clinical experimental treatments must be reviewed by the hospital, doctor and community counselor.

Clinical experiments must be safe and provide treatment that is thought to be as effective as the best available treatments.

Some experiments provide patients with the newest treatment instead of the usual treatment. In some clinical experiments, a patient is treated either with the new or standard treatment and the patient is not allowed to choose the type of treatment.

After the Diagnosis

After the breast cancer is diagnosed, usually most of the patients worry about the outlook and efficacy of the treatments such as surgery and chemotherapy. It is fortunate that there are some ways that help patients feel their best.

Plastic surgery and prostheses are available to make the change in the patient's appearance as unnoticeable as possible.

In some cases, chemotherapy can lead to temporary loss of hair. Excellent wigs are available; choosing one that matches your hair and hairstyle ahead of time is an excellent idea.

There are very helpful networks or patient support groups with people who have all experienced similar procedures. Breast cancer survivors in support groups and patient networks are glad to share their experiences and support. It is often a positive step toward recovery to join a support group and meet people who can understand your feelings.

Cancer treatment may cause tiredness and nausea, but there are methods to reduce these side effects in order to improve how a patient feels.

Summary

Breast cancer is one of the more common cancers.

Some people believe that women who don't breast-feed often get breast cancer. However breast-feeding is not a substitute for regular exams.

Women who breast-feed can get breast cancer.

Early detection increases successful treatment. It is very important to perform self-examinations and schedule regular mammograms.

Treatment options, including breast-sparing surgery, are now available.

The outlook for women with breast cancer is now better than it has ever been.