



BREAST CANCER

The cell is the basic building block of the body, making up all of our tissues and organs. As cells grow old and wear out, new ones replace them. This process is called cell division.

The balance between dying and growing cells is vital to maintain the normal functioning of our bodies. If the number of growing cells exceeds the number of dying cells, then a lump (or tumor) will develop. If the cells in the tumor divide haphazardly and grow in an aggressive manner, this is called a cancer or malignant tumor. Malignant cells have the potential of invading adjacent tissues and can spread to other parts of the body some distance away from the main (or primary) tumor. This process of distant spread is called metastasis. It can occur through the blood stream or the lymph vessels. A breast cancer occurs when the cells of the milk glands or the milk ducts grow and divide in a disorderly manner. This may be detected as a lump in the breast. It can take years for a tumor of 1 cm in diameter to grow in the breast.

What are the different types of breast cancer?

There are two main types of breast cancer: invasive and non-invasive.

Type 1 – Invasive breast cancer

This cancer is more aggressive and has the ability to spread elsewhere in the body and thus may cause death.

Type 2 – Non-invasive breast cancer

This type is confined to the ducts or lobules of the milk glands. It is a non-invasive cancer and does not usually spread to other parts of the body. However, it may develop into an invasive type if left untreated.

The medical name for non-invasive breast cancer is ductal carcinoma *in situ* (DCIS) if it occurs in the milk gland ducts (tubes), or lobular carcinoma *in situ* (LCIS) if it occurs in the gland lobules. It is not considered as cancer as such.

Breast lumps

You should not panic if you discover a breast lump, particularly if you are young (less than 40 years old) and you do not have a family history of breast or ovarian cancer. A breast lump is more likely to be benign (non-

cancerous) than malignant (cancer). Only 10% of breast lumps seen by doctors in breast clinics are cancers. However, if you find a breast lump you should not delay in consulting your doctor.

What are the treatment options for invasive breast cancer?

The purpose of breast screening is to detect the cancer at an early stage in women who appear well and do not have any symptoms of the disease. The earlier that a breast cancer is detected, the more likely it is to be treatable. 'Early' breast cancer implies that the cancer lump is relatively small, has not invaded the overlying skin or underlying chest wall, and that the lymph glands in the armpit are not involved at all (or are only minimally involved). It also means that the cancer has not spread (metastasized) to any other part of the body.

Before any treatment is started, the breast specialist (doctor) must first be certain as to whether the cancer has spread beyond the breast by arranging various tests called 'staging investigations'. Once the specialist has the results of these tests, the best treatment option for that particular patient can be determined.



Types of treatment for breast cancer include:

- Surgery
- Radiotherapy
- Chemotherapy
- Hormone therapy
- Biological therapy.

Surgery – what are the surgical options?

Each patient should play an active role in selecting the appropriate surgical treatment with the specialist.

Studies have shown that removal of the whole breast (mastectomy) does not prolong life when compared with removal of the cancer lump alone (lumpectomy). As lumpectomy preserves more of the breast, it is associated with a better body image compared with total mastectomy.

If you have a successful lumpectomy, i.e., the lump was completely excised with clear margins, then radiotherapy to the whole breast is usually required. In some cases (approximately one third) mastectomy is the preferred treatment option.

It is also advisable to remove some lymph glands from the armpit (this is called axillary dissection – axilla means 'armpit') if the cancer is invasive. If the lymph glands do not contain cancer, then the outlook for the patient is very good. However, the more lymph glands that contain cancer and the bigger the cancer is, the greater the chances are that the cancer may come back after treatment. This helps the specialist to predict the behavior of the breast cancer, and to know if more aggressive treatments, such as chemotherapy, are needed.

Removal of the lymph glands increases the chances of arm swelling (lymphedema), arm stiffness and pain. Therefore it is preferable to remove the minimum number of glands and this can be safely achieved through a technique called the sentinel node biopsy.

Radiotherapy

Radiotherapy uses high-energy X-rays to destroy cancer cells. It is usually given to the breast area following breast conservation surgery and sometimes after mastectomy. Radiotherapy is given to help prevent a recurrence in the breast area.

Radiotherapy is not a systemic treatment and only affects the area that is being treated. It is painless, but there are some side-effects such as skin redness and tiredness, these are usually mild and are temporary. Radiotherapy

involves sophisticated machinery which directs high energy beams at the cancer and surrounding tissue. The individual treatments are referred to as fractions and take a few minutes a day. Radiotherapy is usually given every day. A course of radiotherapy can last from 3 to 6 weeks.

Chemotherapy

Chemotherapy is the name of a group of anticancer drugs used to kill cancer cells.

It is sometimes used as part of the treatment for breast cancer. Some patients require chemotherapy prior to surgery if the tumor is very large. Not all patients will require chemotherapy. This will depend on several factors related to the individual's breast cancer. Chemotherapy is offered to patients where they are likely to benefit from the treatment. This will be discussed with a specialist in chemotherapy who will discuss the benefits of the treatment. The type of chemotherapy which will be offered is based on the current research which has shown a benefit for a particular group of patients.

There are several different types of chemotherapy drug combinations which are used to treat breast cancer. They are normally given into the vein via a drip. Chemotherapy is usually given in the outpatient setting. The treatment usually lasts for 4–6 hours and is given in cycles of 2–3 weeks. This is followed by a rest period of 2–3 weeks until the next cycle starts.

Chemotherapy is a systemic treatment which affects all the cells in the body. Healthy cells as well as cancer cells are affected and this can cause side-effects. These can include nausea, fatigue and hair loss. It is important to remember that most side-effects from chemotherapy are temporary as healthy cells recover quickly. Side-effects are managed very well throughout the treatment process to minimize any discomfort.

Hormonal therapy

Hormonal therapy is used as a form of treatment for breast cancer. This is not to be confused with the hormone replacement therapy which is used during or following the menopause.

Hormonal therapy given as a treatment for breast cancer works by blocking the effects of the hormone estrogen, which in some patients can promote the growth of breast cancer. Cancer cells that have estrogen receptors are referred to as hormone receptor positive. If there are no receptors on the cells, this is referred to as



hormone receptor negative. Hormonal therapy would not be effective for patients who are hormone receptor negative.

The goal of hormonal therapy is to prevent the hormones from being taken up by the cells thereby slowing or stopping the growth of cancer. There are several different types of hormonal therapies and they work in slightly different ways. The most commonly used hormone therapies are:

- Tamoxifen
- Aromatase inhibitors
- Zoladex.

An individual's suitability for hormonal therapy is determined by a variety of factors which must be carefully assessed.

Biological therapy

This refers to the use of proteins capable of blocking the growth process of breast cancer. Herceptin and Avastin are examples of such drugs. They are much better tolerated than chemotherapy.

Treatment of non-invasive breast cancer

In non-invasive breast cancer, the cancer cells remain confined to the ducts or lobules. The medical name for non-invasive breast cancer is ductal carcinoma *in situ* (DCIS) if it occurs in the milk gland ducts (tubes), or lobular carcinoma *in situ* (LCIS) if it occurs in the gland lobules.

LCIS is not considered cancer as such. The presence of this abnormality in a breast biopsy means that the patient has an increased risk of developing breast cancer. The risk

means that about 1 in 3 women with LCIS will develop breast cancer within 30 years of being diagnosed with the original condition.

DCIS usually appears as small white spots on the mammogram, called micro-calcifications. Occasionally, it shows as a lump in the breast or as a blood stained nipple discharge. However, this type of cancer does not usually spread beyond the breast. It is a relatively common finding in women participating in the screening program. The likelihood of non-invasive cancer/DCIS spreading to the lymph glands in the armpit is approximately 1 in 200 cases. This small number is why armpit surgery (axillary dissection) is not routinely performed for DCIS, unlike the invasive type of breast cancer.

What are the treatment options for DCIS?

Non-invasive cancer/DCIS can be treated by mastectomy or by a limited, but complete, removal of the abnormal area, called a wide local excision. Mastectomy is required for widespread DCIS or DCIS located behind the nipple area. The cure rate is approximately 98% for mastectomy. As mentioned earlier, removal of the glands of the armpit is not usually necessary for non-invasive cancer/DCIS.

For those women who have a lumpectomy (removal of tumor lump) rather than a mastectomy (removal of breast), radiotherapy is recommended in most cases. The use of tamoxifen may also be necessary in some cases where the risk of recurrence is high.

Some DCIS lesions that are small and low grade can be cured completely by local removal alone, with no additional treatment.