

## *BREAST CANCER*

Cancer can develop when cells in the body grow out of control, rapidly divide and then invade nearby tissue or spread throughout the body. A collection of these out-of-control cells is referred to as a tumor. In breast cancer, the disease usually begins in lobules or ducts and can then break through the duct or gland walls to invade the surrounding fatty tissue of the breast and eventually invade other areas of a woman's body.

The likely outcome of the disease (prognosis) and treatment of breast cancer is influenced by the stage of the disease (how far the cancer has spread) when first diagnosed.

Breast cancer is broadly categorized in four stages:

- Stage 1: The cancer is confined to a woman's breast only (early stage breast cancer)
- Stage 2: The cancer has spread to nearby structures - i.e. lymph nodes, the ones under a woman's arms (locally advanced breast cancer)
- Stage 3: The cancer has spread to the underlying tissues of the chest wall (locally advanced breast cancer)
- Stage 4: The cancer has spread to other parts of a woman's body (metastatic or advanced breast cancer)

## **Risks and causes of breast cancer**

All women are at risk of breast cancer and many of the causes of breast cancer are unknown. Research has identified a number of risk factors that may increase a woman's likelihood of developing breast cancer. These include:

- increasing age
- long menstrual life (early onset of menstruation or late menopause)
- late first pregnancy (first child after the age of 30)
- no children
- hormonal status and
- family history.

A family history of breast cancer may increase the risk of developing the disease.

Studies are also evaluating the role of lifestyle factors in the development of breast cancer, including exposure to pesticides, alcohol consumption, weight gain, dietary fat intake and physical inactivity.

The average age of diagnosis is 62, demonstrating the importance of age as a risk factor; 78 percent of breast cancer cases occur in women older than 50, and six percent in women younger than 40. Of increasing concern is that in developed countries, such as the United States, breast cancer is the leading cause of death in younger women aged 20 to 59.

Some factors may decrease a woman's risk of breast cancer, notably breast-feeding and exercise. Breast cancer can occur in men, but it is rare.

## **Symptoms of breast cancer**

Unfortunately a woman in the early stages of breast cancer may not have any symptoms. This is why it is important for women to follow screening recommendations. However, as the cancer grows in size, a woman may notice a number of symptoms including:

- a lump or thickening in her breast or underarm area
- a change in size or shape of her breast
- nipple discharge or nipple turning inward
- redness or scaling of the skin on or around the nipple
- ridges or pitting of the breast skin.

## Screening and diagnosis of breast cancer

Early detection and treatment of breast cancer increases life expectancy and provides women with more treatment options. Approximately 95 percent of women who are diagnosed when the cancer is local (i.e. is confined to their breast or has spread to the surrounding and underlying tissue) will live more than five years after diagnosis. This compares to 23 percent of women surviving five years with breast cancer that has spread to other parts of the body. The majority of breast cancers are detected by women themselves, most often as a small, firm lump. Therefore, many doctors recommend that women conduct monthly, at-home breast self-examinations.

Some doctors also advocate an annual clinical check-up to detect breast lumps or a yearly or twice-yearly mammogram, a special form of breast x-ray. A mammogram to detect abnormalities is also recommended in older women and women at high risk of breast cancer as a means of detecting breast cancer.

If a lump is felt or an abnormality detected on a mammogram, a biopsy may be necessary, which allows physicians to obtain sample tissue for examination under a microscope to make a diagnosis. In most cases the lump is painless, but some women experience cancer-related pain.

For follow-up diagnosis and monitoring Roche Diagnostics offers its Elecsys cancer tests. Research programs are under way to identify novel markers for breast cancer. First test launches of these new markers (DNA methylation markers) are expected in 2007.

## References:

1. World Health Organisation( 2003  
(<http://www.who.int/mediacentre/releases/2003/pr27/en/>)  
Mortality Report – UK: CancerResearch UK. February 2003.  
Breast Cancer Care UK: Hereditary Breast Cancer. May 2003.

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