

The Cancer Council Queensland Information Sheet

Tamoxifen

What is Tamoxifen?

Tamoxifen is a hormonal therapy that blocks the effects of oestrogen in breast tissue. Developed more than 30 years ago, it is widely used to treat breast cancer, both after the initial surgery and if the cancer has come back following treatment and at times as sole initiating therapy. Tamoxifen may also be used to help prevent breast cancer in some women who are at very high risk of developing the disease.

Effect of oestrogen in the body

Women's bodies produce two female sex hormones called oestrogen and progesterone. Women's ovaries begin producing these hormones at puberty and continue to do so until menopause. Following menopause, the ovaries cease their production, but small amounts of oestrogen continue to be produced in other tissues especially in fat. These hormones travel through the bloodstream and target the cells in a number of different organs. The breast and uterus are the two organs most significantly affected, but oestrogen also acts on the brain, bone, liver and heart. During a woman's reproductive years, a normal function of oestrogen is to trigger the growth of cells that form the inner lining of the milk glands during each menstrual cycle, in preparation for a possible pregnancy. However, this increased cell proliferation is accompanied by an increased risk of abnormal cell changes, which may later develop into cancer. These cancer cells may themselves be stimulated by oestrogen to grow and reproduce.

Oestrogen receptors

Oestrogen affects only those cells that contain a specific protein called an oestrogen receptor, which enables the oestrogen to bind to the cell. Breast tissue

removed during surgery for breast cancer is sent to a pathologist for examination and testing. One of the tests is to see whether the cancer cells have hormone receptors on them. Those that do are said to be oestrogen receptor (ER) or progesterone receptor (PR) positive, as appropriate.

How Tamoxifen works

Tamoxifen binds onto the oestrogen receptors of breast cells, which then prevents the oestrogen molecules from doing so. Oestrogen is therefore unable to stimulate the proliferation of breast cells, including cancer cells.

Who can benefit from Tamoxifen?

Although tumours that are found to have oestrogen receptors are usually the more responsive to Tamoxifen, it may provide some effect, though probably much less effect, in some instances where the test does not show any oestrogen receptors. The presence of progesterone receptors, in the absence of oestrogen receptors, may also be an indicator that the cancer will respond to Tamoxifen. Therefore each woman's case will be considered individually, as anticipated benefits of treatment for her must be weighed against possible side-effects. Tamoxifen is commonly used in addition to other treatments such as surgery, radiation therapy and chemotherapy, to reduce the chance of the cancer returning in the same breast and the development of new cancers in the opposite breast.

It may also be used to control breast cancer that has returned after initial treatment. In these circumstances, it can often control cancer for long periods of time. Women who have been identified to be at very high risk of developing breast cancer may benefit from using Tamoxifen as a preventative measure.

Possible side-effects

Individual women respond differently to Tamoxifen. Concerns about side-effects can be discussed with doctors.

Tamoxifen does not cause a woman to begin menopause, but because it counteracts the effects of oestrogen in the body, women may experience symptoms similar to menopause. These symptoms may be more pronounced in pre-menopausal women. Before commencing any additional or complementary therapies to manage side-effects, it is recommended women discuss this with their oncologist.

Hot flushes and sweats

The flushes may gradually lessen over the first few months but some women continue to have them for as long as they take Tamoxifen. If the hot flushes remain troublesome, discuss possible options with your doctor.

Change in menstrual periods

Women who have not yet reached menopause may notice a change in their monthly periods. Periods may become irregular, lighter or sometimes stop altogether.

Vaginal discharge

There may be an increase in vaginal discharge and perhaps some irritation of the skin on the vulva.

Nausea and indigestion

Feeling sick in the stomach (nausea) and indigestion may occur, but can often be relieved by taking tablets with food or milk at night before bed. Although nausea is quite common initially, it usually wears off after a few weeks.

Weight gain

Many women report weight gain, however this may not always be due to the medication. It can be due to a lack of hormones after menopause if hormone replacement therapy has been ceased or if chemotherapy has been administered. It may also be due to reduced physical activity after treatment. Some fluid retention may also occur.

Blood clots

There is an increased risk of blood clots (thrombosis), therefore women who have had blood clots in the past may not be able to use Tamoxifen and should report this to their doctor.

Visual problems

Although uncommon, blurred or reduced vision or any other visual changes should be reported to a doctor.

Long-term side-effects

Tamoxifen taken long term may slightly increase the risk of developing cancer of the uterus, as it stimulates the proliferation of the cells lining the uterus. Generally the benefits of Tamoxifen in treating the breast cancer outweigh the risks related to uterine cancer.

Women using Tamoxifen should talk with their doctor about what precautions they should take. Any abnormal vaginal bleeding or pelvic pain should be reported to a doctor and checked promptly.

Tamoxifen and pregnancy

Women should avoid pregnancy while taking Tamoxifen, as studies in animals have suggested it may cause harm to the foetus. Concerns about fertility, birth control or future pregnancy are best directed to doctors or nurses who are part of the treatment team.

How long does the treatment continue?

When used as adjuvant treatment for early stage breast cancer, it is generally recommended that Tamoxifen is taken for five years.

There are a number of ongoing studies to assess the best use of Tamoxifen and other hormonal treatments for breast cancer. New information is regularly becoming available and at present your doctor may well suggest changing to another drug after 2-3 years. You should ask your doctor if you have concerns about the best treatment for your case.

Women with advanced breast cancer may take Tamoxifen for varying lengths of time depending on their response to treatment. If the response to Tamoxifen diminishes, different drugs may be tried.

Other hormone treatments

Tamoxifen is not the only hormone therapy that is effective in the treatment of breast cancer. There are a number of other hormone therapies in use. You may wish to ask your doctor about their potential role in the management of your breast cancer.