



Premenopausal women at high risk of breast cancer

Information for patients from the UK Cancer Genetics Group (UKCGG)

This leaflet is for women who have been told that they have a high risk of breast cancer because of their family history, and wish to discuss the use of Tamoxifen to decrease their risk. Having a high risk of developing breast cancer means a lifetime risk which is 1 in 3 (approximately 30%) or higher.

Breast cancer risk

Breast cancer risk means the chance of developing breast cancer in the future. Everyone has a chance of developing breast cancer but this risk is increased if you have a family history of the disease. If you have an increased risk of developing breast cancer there are a number of options available to you. This includes screening to detect cancer early using mammography and / or MRI (magnetic resonance imaging).

The other option is to try to decrease your risk of breast cancer. This can be done using tablets – chemoprevention – or by using surgery to remove healthy breast tissue before a breast cancer occurs. Surgery is the most effective way to decrease risk and will reduce the risk of breast cancer below that of the general population. It is however, major surgery and not all women at high risk feel that surgery is right for them. This leaflet discusses the use of a tablet to decrease breast cancer risk.

Chemoprevention and breast cancer risk

Guidelines produced by the National Institute for Health and Care Excellence (NICE) for familial breast cancer recommend that women at an increased risk of breast cancer because of a family history of breast cancer, should be offered medication to reduce their risk. This medication needs to be taken for 5 years. For premenopausal women, the medication is called Tamoxifen.

What is Tamoxifen, and how does it work?

Tamoxifen is a drug which has been used to treat women with early and advanced stages of breast cancer for almost 40 years. There is now evidence that it can also help to prevent breast cancer occurring. Four large studies have explored the use of Tamoxifen in women at increased risk of breast cancer, and have shown that

it decreases the risk by about 40%. However, it is still the subject of ongoing research for the prevention of breast cancer and is therefore currently unlicensed for this use in the UK.

Tamoxifen is a drug which blocks the action of oestrogen (it is sometimes called an anti-oestrogen drug). Oestrogen is a natural female hormone which is produced mainly by the ovaries in women before menopause. It is important for the functioning of the reproductive system. After menopause the ovaries stop producing oestrogen, but low levels of the hormone continue to be produced in fat, liver, muscle, and breast tissue.

Many breast cancers rely on oestrogen to grow. These cancers are known as oestrogen-receptor positive (ER-positive) breast cancers (<https://www.macmillan.org.uk/cancer-information-and-support/breast-cancer/receptors-for-breast-cancer>). These cancer cells have proteins called receptors, to which the oestrogen attaches. When oestrogen comes into contact with the receptors, it fits into them and stimulates the cancer cells to divide so that the tumour grows. Tamoxifen fits into the oestrogen receptor and blocks oestrogen from reaching the cancer cells. This means the cancer either grows more slowly or dies. Cancers not sensitive to oestrogen are called oestrogen-receptor negative (ER-negative), and Tamoxifen has no effect on these cancers.

Tamoxifen reduces the effects of oestrogen in most areas of the body, including the breast. However, in the uterus, Tamoxifen acts like an oestrogen and encourages the growth of the lining of the uterus.

Tamoxifen is usually prescribed as a tablet you take once a day by mouth. For breast cancer risk reduction, studies suggest it needs to be taken for 5 years.

Using Tamoxifen to prevent breast cancer

There have been a number of studies researching the use of Tamoxifen to prevent breast cancer in women at increased risk. The IBIS-1 trial, which was carried out here in the UK, involved women with a family history of breast cancer, taking Tamoxifen or a placebo (inactive pill) for 5 years. The actual number of breast cancers they developed during the 5 years, and after was then compared. At the 5 year point, the number of cancers had been reduced in women taking Tamoxifen, but the complication (side-effect) rate was increased. At the 10 year point, the reduction in risk of breast cancer was 38%, and the benefit of Tamoxifen outweighed the complications, which stopped after the tablet was stopped at 5 years.

The studies showed that if 1000 premenopausal women at high risk of breast cancer take Tamoxifen for 5 years, 99 will develop breast cancer. If the same 1000 women at high risk do not take Tamoxifen, 160 will develop breast cancer. A large number of women will not benefit from Tamoxifen.

Who is it for?

Tamoxifen can be used to reduce the risk of breast cancer in women with an increased risk, whether or not they have gone through menopause. The best age to start taking Tamoxifen is not known. It will be vary between women depending on their level of risk. For most women the risk of breast cancer, and therefore benefit of Tamoxifen, will be low before the age of 35. All the research studies of Tamoxifen started from 35 years of age, or older.

The evidence for the benefit of Tamoxifen taken by women with an known gene change in BRCA1 or BRCA2 who have a very high risk of breast cancer is limited. This is because not many women with a BRCA1/2 gene change were included in the studies. The evidence suggests that whilst it may be useful in BRCA2 gene carriers, the benefit for BRCA1 carriers is less certain.

Who should not take Tamoxifen?

Not all women at increased risk will decide to take Tamoxifen. The potential benefits and side-effects should be considered and discussed with your doctor.

- A woman should not take the drug if she wants to get pregnant, as this will significantly reduce her chances of becoming pregnant. If a pregnancy does occur whilst on Tamoxifen, there may be harmful effects on the foetus. Tamoxifen should be stopped at least 2 months before trying to conceive.
- Women should not take Tamoxifen if breast feeding.
- Women who have a personal or family history of blood clots (for example deep vein thrombosis (DVT)) should let their doctor know as Tamoxifen may not be suitable.
- Women who have had cancer of the womb should not take Tamoxifen for chemoprevention.
- Women should not take HRT at the same time as Tamoxifen.

Possible side-effects

Tamoxifen, like many medications, may cause unwanted side-effects. Often, Tamoxifen causes symptoms similar to the menopause. These side-effects may be worse for some than for others, as each person's reaction to any medicine is different. Some people have very few side-effects, while others may experience more. If you have side-effects you should discuss these with your GP. Very rarely, if the side-effects are severe, you may have to stop taking Tamoxifen. You may have some of the following side-effects, to varying degrees.

Common side-effects

- Hot flushes and sweats are a common side effect of Tamoxifen. These symptoms may gradually lessen over the first few months, but some people continue to have them for as long as they take Tamoxifen. There are a number of ways to help reduce or control hot flushes and sweats. Some people find it helps to avoid or cut down on tea, coffee, nicotine, and alcohol.
- Feeling sick (nausea). Nausea may occur, but can often be relieved by taking the tablets with food or milk, or at night. Although nausea is quite common to start with, it usually improves after a few weeks.
- Tamoxifen usually reduces the pain and tenderness some women have before and during periods.
- Gynaecological problems. Women who have not yet had the menopause may notice that their monthly periods change. They may become irregular, lighter, or sometimes stop altogether. Some women also notice an increase in vaginal discharge and itching of the area around the vagina (the vulva). Periods may also become heavier. This can be linked with pain and may be the result of an increase in size of any pre-existing fibroids. Tamoxifen may cause painful enlargement of ovarian cysts.
- Leg cramps. Some people get leg cramps with Tamoxifen. Walking may stretch the muscle and help with this. Let your doctor know if leg cramps are a problem. **If your leg becomes red, hot, or swollen, tell your doctor immediately.**

Less common side-effects

- Headaches. Some people affected by migraines notice a change in the pattern of their headaches, often a reduction in frequency.

- Blood clots (thrombosis). The risk of blood clots doubles whilst a woman takes Tamoxifen, but the risk returns to normal once Tamoxifen is stopped. In one study 9 out of 1000 women taking Tamoxifen for 5 years before the menopause had a blood clot compared to 4 out of 1000 women not taking Tamoxifen. Whilst you are on the drug, if you have any pain, warmth, swelling, or tenderness in an arm or leg or any chest pain, you must tell your doctor straightaway. Women should stop Tamoxifen six weeks before any planned surgery to reduce the risk of blood clots.
- Vision problems. Blurred or reduced vision is very rare, but any changes in your eyesight should be reported to your doctor.
- Voice changes. This side-effect has been reported by some people. Professional singers may want to ask for help and advice from their doctor.

Effects of other drugs on taking Tamoxifen

There is some research that suggests some drugs – including the antidepressants Paroxetine (Seroxat®) and Fluoxetine (Prozac®) – may cause Tamoxifen to be less effective, but this isn't certain. Tell your doctors about any other medicines you are taking, so that they can check whether it is safe for you to use them alongside Tamoxifen.

What should I do next?

If you have previously had your risk of breast cancer assessed and you fall into the high risk category, and wish to consider taking Tamoxifen, you should talk to your GP about this. If you have not had your risk of breast cancer assessed, you should ask your GP to refer you either to your local Breast Cancer Family History Clinic or your local genetics service.

Produced with grateful acknowledgement to the UK Cancer Genetics Group and their **Leaflet for premenopausal women at high risk of breast cancer (2017)**.

This leaflet has been produced with and for patients.

If you would like this information in **another language, audio, Braille, Easy Read, or large print** please ask a member of staff. You can ask someone to contact us on your behalf.

Any complaints, comments, concerns, or compliments please speak to your doctor or nurse, or contact the Patient Advice and Liaison Service (PALS) on 01227 783145 (tel://+441227783145), or email ekh-tr.pals@nhs.net (ekh-tr.pals@nhs.net)

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Further patient leaflets are available via the East Kent Hospitals website (<https://www.ekhuft.nhs.uk/information-for-patients/patient-information/>).

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