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About Breast Cancer Care

Breast Cancer Care is here for anyone affected by breast cancer. We bring people together, provide information and support, and campaign for improved standards of care. We use our understanding of people's experience of breast cancer and our clinical expertise in everything we do. Visit www.breastcancercare.org.uk or call our free helpline on **0808 800 6000**. Calls may be monitored for training purposes. Confidentiality is maintained between callers and Breast Cancer Care.

Fertility issues and breast cancer treatment

This factsheet is for women who are concerned about breast cancer treatment and their fertility. It discusses how treatment may affect your fertility and ways of trying to preserve it. It also includes issues such as pregnancy after a diagnosis of breast cancer and permanent infertility.

Donations from the public make it possible for us to provide publications like this one free to people affected by breast cancer.

If you would like to make a donation, please send your cheque to: Breast Cancer Care, RRRZ-ARZY-YCKG, 5-13 Great Suffolk Street, London SE1 0NS. Or donate via our website at www.breastcancercare.org.uk

Introduction

We hope this factsheet helps you to understand what to expect both before and after treatment and enables you to discuss any fertility issues you may have with your specialist team.

Contraception

If you are sexually active, it is important to discuss contraception with your specialist team, who may refer you to a family planning clinic or your GP. It is generally recommended that women having treatment for breast cancer (this includes the hormone treatment tamoxifen) use non-hormonal methods of contraception, such as condoms, Femidoms or a diaphragm.

It may also be possible to use a coil (IUD) although this is something you would need to discuss with your specialist as not all types are suitable for women with breast cancer. The contraceptive pill is not advised for any woman following a diagnosis of breast cancer. This is because of the possibility that the hormones in the contraceptive pill could stimulate any remaining breast cancer cells.

You should use reliable contraception before, during and after treatment. Generally speaking, you should assume

that you could still get pregnant unless you have not had a period for at least a year (if you are 40 or over) or two years (if you are under the age of 40) after completing your treatment. However, it is important to remember this does vary for each individual.

Fertility issues before treatment begins

Some breast cancer treatments cause infertility. This may be temporary or permanent depending on your age and the treatment you are receiving. It is important that you discuss any fertility issues with your specialist team before you begin your treatment.

Chemotherapy

Chemotherapy is the treatment that is the most likely to have a direct impact upon fertility. Temporary or permanent infertility can be a side effect in pre-menopausal women (women who have not been through the menopause/change of life). Chemotherapy can affect the function of the ovaries resulting in less or no eggs being produced.

If you are having chemotherapy, the likelihood of you becoming infertile depends on the type of drug(s) used, the dose given and your age.

The chemotherapy drugs most likely to cause infertility are a group called the 'alkylating agents', one of which (cyclophosphamide) is commonly used in combination with other chemotherapy drugs to treat breast cancer. The effect that other drugs, such as the taxanes (docetaxel and paclitaxel), have on fertility has not been widely studied.

Chemotherapy can cause your periods to stop (amenorrhoea) and this may be temporary or permanent. Generally, women who are over 35 develop permanent amenorrhea following much lower doses of chemotherapy drugs than women who are under 35. This means those over 35 are more likely to lose their fertility by having an early menopause.

It is possible for women to stop having periods temporarily during treatment and to start their periods again later, even months or several years after treatment has finished.

Ovarian suppression or ablation

Ovarian suppression or ablation (temporarily or permanently stopping the ovaries from working) may be offered as a treatment if your breast cancer is oestrogen receptor positive (the cancer is stimulated by oestrogen which encourages cells to grow). It can

be achieved in one of three ways – hormone treatment, surgery and radiotherapy.

Ovarian suppression

Zoladex (goserelin) is a hormone treatment that results in a potentially reversible suppression of ovarian function, in that fertility is only affected temporarily. Your periods should usually start again within six months of stopping Zoladex treatment.

For more information see our **Ovarian ablation and suppression** and **Zoladex (goserelin)** factsheets.

Ovarian ablation

Surgery (oophorectomy) is a way to achieve ovarian ablation by removing the ovaries in an operation. This will result in an immediate menopause and permanent infertility. Radiotherapy is an alternative way of stopping the ovaries from working. It destroys the eggs so the ovaries become inactive. This brings on an early menopause resulting in permanent infertility (although this is not as immediate as surgically removing the ovaries). Radiotherapy for ovarian ablation is not commonly used in the UK.

Tamoxifen

Tamoxifen is a hormonal treatment used in women whose breast cancer is oestrogen receptor positive. In most pre-menopausal women who take tamoxifen the ovaries continue to work. When you start taking tamoxifen it may stimulate ovulation (release of the egg from the ovary) making you more fertile. With continued use, in some women (approximately half) periods become less regular, lighter or disappear altogether. Generally your periods will start again once you stop taking tamoxifen (as long as you have not gone through the menopause naturally while taking the drug). However, it may take four to five months for your cycle to become regular.

Tamoxifen is usually taken for five years and you will be advised not to get pregnant while taking it, so if you are sexually active you need to use a non-hormonal form of contraception. Because of the length of time it is taken for, the side effects of tamoxifen may mask the onset of natural menopause. It may only be when you finish taking it that you realise you have started your menopause. If you want to have children and you are in your late thirties or early forties, then taking tamoxifen for as long as five years may be an issue you want to discuss with your specialist team. For further information see our **Tamoxifen** factsheet.

Possible ways to preserve fertility before treatment begins

If you want to look at ways of trying to preserve your fertility, talk to your specialist team before your treatment begins. This is generally only an option for women under the age of 40 as fertility is declining naturally in women beyond this age.

There are a number of possibilities that may be appropriate for you, although - some of these are only in the very early stages of research.

Chemotherapy

If your main concern is to preserve your fertility, you may consider declining chemotherapy. Or you may opt for a particular type of chemotherapy that appears to be less harmful to the ovaries. For example, research shows that FEC (5-fluorouracil, epirubicin and cyclophosphamide) or four cycles of AC (doxorubicin and cyclophosphamide) are less damaging than CMF (cyclophosphamide, methotrexate and 5-fluorouracil). A higher dose of cyclophosphamide in the CMF regime will almost certainly bring about chemotherapy-induced menopause for women in their 40s.

Zoladex

It may be possible for some women to have monthly injections of Zoladex as an alternative to chemotherapy or tamoxifen. As Zoladex only causes your periods to stop for the time it is taken, this may be a way of preserving your fertility. Your specialist can advise you if this an option for you.

Reproductive procedures

The following procedures have limited availability and success, and many remain in the early stages of development. Not all are available on the NHS. Your specialist fertility unit will be able to advise you further.

IVF (in vitro fertilisation)

This procedure involves taking hormone drugs to stimulate the ovaries to produce enough eggs so that they can be harvested, fertilised (with sperm from a partner or donor) and stored as embryos. Although it is not currently known what effects these hormones may have, there is a possible risk that they could stimulate the growth of breast cancer cells. It could also delay chemotherapy for up to two months.

Fertilised embryos can be frozen and stored for up to 10 years before being implanted in the womb. IVF does not guarantee that you will get pregnant.

Freezing eggs

In 1998, the first UK licence was granted for human eggs to be frozen and stored for up to five years. This procedure is similar to IVF in that the ovaries are stimulated to produce eggs that are then frozen. They can then be thawed and fertilised (with sperm from a partner or donor) when you want to get pregnant. However, this is a very delicate procedure and eggs are easily damaged in the freezing and thawing process.

At the moment the availability of this procedure varies across the UK and may only be suitable for women under 35. Furthermore, there is no guarantee that you will get pregnant and so far very few live births have been recorded worldwide with this procedure.

Freezing ovarian tissue

This technique is in the early stages of research. A small section of ovarian tissue is removed and frozen. This procedure involves an operation. It can be performed as a day case but must be done before chemotherapy treatment begins. The tissue can then be thawed at a later date and can either be re-implanted on to the ovary to start functioning and allow natural conception, or at a different site in the body so the process of IVF can take place.

This procedure is not widely available

and there have been no recorded live human births from it in women with breast cancer.

IVM (in vitro maturation)

This is a new technique in the developing area of fertility treatment and is not currently widely available. It involves removing immature eggs from ovaries that have not been stimulated by the use of hormone drugs. These are then matured in the laboratory before being fertilised from either a partner's or donor's sperm, and then frozen. The embryos are then transferred to the womb at a later date. The number of babies born using this method is very few worldwide.

Possible ways to preserve fertility during treatment

It is thought that using Zoladex alongside chemotherapy may protect the ovaries by stopping them from working temporarily so that the chemotherapy is less likely to damage them. Clinical trials are currently being carried out to establish if this treatment is effective in preserving fertility in women receiving chemotherapy. A member of your specialist team should be able to provide further information.

Possible ways to preserve fertility following treatment

Options for preserving fertility following treatment are limited as damage to the ovaries has already occurred. For those women whose cycle returns, it may be possible to have pregnancies after breast cancer treatment. However, for some this may not be possible.

Egg donation

It may be possible to get pregnant by using eggs donated by other fertile women. There is a shortage of egg donors so there may be a long wait for treatment. This procedure involves taking hormone replacement therapy (not fertility drugs) to prepare the womb, which may not be suitable for all women.

Fertility issues after treatment

What can I expect after treatment?

It is difficult to predict precisely how your fertility will be affected by cancer treatment. Generally speaking, you should assume that you could still get pregnant unless you haven't had a period for at least a year (if you are 40 or over) or two years (if you are under the age of 40) after completing your treatment. If your periods haven't started, you may still be producing eggs and could still become pregnant.

To check if your ovaries are working your specialist will not only look at whether your periods have started again but also monitor whether you have any menopausal symptoms. A series of blood tests to monitor the follicle stimulating hormone (FSH) can be taken. The results of these can indicate whether you have gone through the menopause. An ultrasound scan of the ovaries may also be helpful but this needs to be performed in a specialist centre.

You may not be able to find out straightaway after your treatment has finished if you are still fertile. For example, you may have to wait three

to six months after your chemotherapy before your blood levels can be tested. However, it may be possible to test FSH levels while taking tamoxifen, but some oncologists recommend that you stop tamoxifen for a few weeks before checking blood levels. Even when fertility returns after chemotherapy the menopause may occur earlier than would normally be expected.

Pregnancy after breast cancer

If you are able to become pregnant and have a baby after your breast cancer treatment, there is no evidence to suggest that you are at an increased risk of the cancer returning. However, as a general guide, many specialists advise women to wait for at least two years following chemotherapy treatment before becoming pregnant. This is because the possibility of the cancer coming back can lessen over time so that the first two years after diagnosis is when you may be at the greatest risk.

Waiting for this long may not be appropriate for every woman. If you are thinking about getting pregnant before this two-year period is up, it is important to talk to your specialist who can help you make an informed choice.

If you are offered tamoxifen treatment, this is usually given for five years by which time you may be facing a natural menopause. If the length of tamoxifen treatment concerns you, talk to your specialist team who will be able to advise you further.

Coping with permanent infertility

Having cancer treatment may mean you have to think about your fertility sooner than you had planned. Being infertile can be very difficult to come to terms with, especially if it comes at a time when you are planning to start a family or have more children. For some women infertility makes them feel less of a woman and their self-esteem is affected by not being able to have children.

If you are concerned about any issues relating to your fertility you may find it helpful to talk through your feelings with a specialist infertility counsellor, your breast care nurse or oncologist may be able to arrange this for you.

Whatever your feelings, remember that you don't have to cope on your own. Your cancer specialist and breast care nurse are there to provide information and support for you. You may find it helpful to share your feelings with

another woman who is infertile as a result of breast cancer treatment.

Breast Cancer Care may be able to put you in touch with someone who has had a similar experience. This factsheet also contains details of organisations that support people who are coping with permanent infertility.

There is further information on both temporary and permanent infertility in our **Younger women with breast cancer** booklet.

Further help from Breast Cancer Care

For further medical information, emotional support, and details of our services, call our helpline free on **0808 800 6000** (for Typetalk prefix **18001**).

Breast Cancer Care's website has an email enquiries service called Ask the nurse, along with forums and live chat sessions where you can share your views with people in a similar situation. For more information about these services and other online support, visit **www.breastcancercare.org.uk**

We run courses and activities for people with breast cancer, which aim to provide information and support and give people the chance to meet others in a similar situation. For more information about these events, call our helpline or contact your nearest Breast Cancer Care centre (details on the reverse).

Breast Cancer Care also has a wide range of publications to guide you from diagnosis to living well after treatment. You can download and order our publications at **www.breastcancercare.org.uk** or call our helpline on **0808 800 6000** for a printed order form.

Useful addresses

The Daisy Network

PO Box 183, Rossendale BB4 6WZ
Email: daisy@daisynetwork.org.uk
Website: www.daisynetwork.org.uk

Voluntary nationwide support group for women who experience a premature menopause. Exchange of information on IVF, HRT and on ways to have a family through egg donation, surrogacy or adoption. Provides informal telephone support and a quarterly newsletter.

Human Fertilisation and Embryology Authority (HFEA)

21 Bloomsbury Street,
London WC1B 3HF
Telephone: 020 7291 8200
Email: admin@hfea.gov.uk
Website: www.hfea.gov.uk

This organisation monitors and licenses all IVF clinics in the UK. It produces a list of centres providing IVF and leaflets on IVF, egg donation and egg freezing.

Infertility Network UK (I N UK)

Charter House, 43 St Leonards Road,
Bexhill-on-Sea, East Sussex TN40 1JA
Telephone: freephone 0800 008 7464
Email: admin@infertilitynetworkuk.com
Website: www.infertilitynetworkuk.com

Provides support, counselling and information, and promotes awareness of infertility issues.

Other organisations

Macmillan Cancer Support

89 Albert Embankment,
London SE1 7UQ

Telephone: 020 7840 7840

Macmillan CancerLine: 0808 808 2020

Cancerbackup Helpline 0808 800 1234

Textphone: 0808 808 0121

Email: cancerline@macmillan.org.uk

Website: www.macmillan.org.uk

Macmillan Cancer Support improves the lives of people affected by cancer by providing practical, medical, emotional and financial support, and campaigning for better cancer care.

Its Cancerbackup Helpline team can provide up-to-date information on diagnosis, symptoms, treatments, clinical trials and more. The Macmillan CancerLine provides information and emotional support. Other services include cancer information booklets, Macmillan nurses and a website.

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