

# FEC chemotherapy



This factsheet explains about the chemotherapy combination FEC, when it may be used, how it works and what side effects may occur.

FEC is a combination of three chemotherapy drugs:

5 fluorouracil (also known as 5FU),  
epirubicin and cyclophosphamide.

FEC takes its name from the initials of these drugs.

## Introduction

There are several combinations of drugs used to treat breast cancer, FEC is one of them. Your specialist team will decide which combination is best for your type and stage of breast cancer.

It is a good idea to read this factsheet with our **Chemotherapy for breast cancer** booklet, which describes chemotherapy treatment in general, explains possible side effects and discusses some frequently asked questions.

## Who might be offered FEC chemotherapy?

FEC chemotherapy is used to treat people with primary breast cancer (cancer in the breast that may or may not have spread to the lymph nodes (glands) under the arm). It may also be given to people with secondary breast cancer (breast cancer that has spread from the breast to another part of the body). It may be given before surgery, known as neo-adjuvant therapy, to try and reduce the tumour size, or more commonly after surgery, known as adjuvant therapy.

You will usually be offered chemotherapy if breast cancer cells have been found in the lymph nodes (glands) under the arm. Even if there is no disease in the lymph nodes, chemotherapy may be offered based on other factors including the size and grade of your breast cancer (how different the cells are to normal breast cells and how quickly they are growing). For more information on this, please see our booklet **Understanding your pathology report**.

Whether you receive chemotherapy or not will depend on your individual circumstances. If you have concerns regarding treatment, you should discuss these with your specialist team.

## How does FEC treatment work?

All cells divide and grow continually which enables growth and repair of body tissues, but cancer cells grow by dividing in a disorderly and uncontrolled way. Chemotherapy destroys cancer cells by interfering with their ability to divide and grow.

Different chemotherapy drugs work in different ways and attack the cancer cells at different stages of their growth. This is why a combination of drugs is often used instead of one single drug.

## How is it given?

The drugs are usually given directly into a vein (intravenously), although the drug cyclophosphamide can also be given in tablet form. A small plastic tube called a cannula is inserted into the vein in the back of the hand or lower arm and the drugs are given as an infusion (also called a drip) or are injected directly through the cannula, over a period of approximately one hour or more in total.

Sometimes a special intravenous device is used, for example a skin-tunnelled catheter (a fine tube inserted into a large vein through a small cut in the chest wall), or alternatively you may have a PICC line inserted (peripherally inserted central catheter) into a vein in your arm which extends into the large vein leading to your heart. Both of these can stay in place until your treatment is complete.

With FEC, all three drugs are given intravenously into the cannula on the same day. You will then have a three week break. On the first day of the fourth week all three drugs will be given again. This pattern, known as a 'cycle' or 'course', is generally repeated four to six times. There are different ways of having FEC, but this is the most common way it is given.

The total length of your treatment is usually four to six months and the dose of chemotherapy is calculated for each individual, based on their weight and height. The break between each course of treatment gives your body time to recover from any short-term side effects that might occur. The intervals between the treatments may vary depending on how well your cells recover between cycles. See the *Common side effects* section of this factsheet for more information.

You will normally be given your treatment as an outpatient so you will be able to go home the same day. Each time you have chemotherapy you should expect to be at the hospital for most of the day to allow for waiting time, blood tests, the drugs to be prepared and the treatment to be given.

## What are the side effects of FEC?

Like any treatment, FEC chemotherapy can cause side effects. Everyone reacts differently to drugs and some people have more side effects than others. These side effects can usually be controlled. Some people find it helpful to keep a diary of how they are feeling during their chemotherapy so they can discuss this with their nurse.

If you are concerned about side effects, it may be helpful to talk to your chemotherapy nurse or someone in your specialist team. Also, if you notice any side effects not listed here that concern you, we recommend you seek further advice.

Some people find complementary therapies helpful in controlling some of the side effects. It is important to tell your specialist team if you are taking any herbal supplements or remedies as some may react with the treatment. For more information see our **Complementary therapies** publication.

## Common side effects

### Effects of administering FEC

While the drug cyclophosphamide is being injected you may feel hot and slightly dizzy. Your nose may itch or you may have a metallic taste in your mouth. These side effects will probably go as soon as the injection is finished, but tell your chemotherapy nurse if you experience any of these. Having the drug given more slowly can help.

While epirubicin is being given you may experience some pain near the cannula while the drug is going through. If this happens, inform the nurse giving the chemotherapy immediately as they may need to use a different vein.

You may notice when you go to the toilet that your urine is a pink colour. This is not blood. It is the epirubicin being passed through your kidneys and bladder. This is a normal process and may last for up to 24 hours after treatment.

It is important to drink plenty of fluids around the time you have your treatment as chemotherapy drugs (particularly cyclophosphamide) can irritate the lining of the bladder.

## Bone marrow suppression

Chemotherapy drugs can also affect healthy cells within the body.

Blood cells are made by your bone marrow to replace those which are naturally used up within the body. Chemotherapy can affect the bone marrow, reducing its ability to make new blood cells. Your number of white blood cells can become low making you prone to getting infections, being less able to fight infections means you could become very ill.

Before each course of chemotherapy begins (or sometimes during a course) you will have a blood sample taken to ensure that the levels of these cells are within safe limits to have treatment.

Your resistance to infection is at its lowest point 10-14 days after the chemotherapy has been given. If you feel unwell or have a temperature above 38 degrees you should contact the hospital immediately, even if it is at the weekend or during the night. You may need treatment in the form of antibiotics.

You will have a blood test before your next course to check that the blood cells have recovered. Sometimes it is necessary to delay the next course of treatment if the number of blood cells (blood count) is too low.

## **Nausea and vomiting**

You may experience nausea, which can start immediately after chemotherapy or a few hours later. It may last for several hours or may even continue for several days. However, nausea can usually be controlled or lessened with anti-sickness drugs. You should contact your hospital if your symptoms don't improve.

Anti-sickness drugs are routinely prescribed with chemotherapy to help prevent nausea. If these don't work, other drugs can be prescribed.

## **Diarrhoea**

You may experience some diarrhoea during your chemotherapy treatment. Let your specialist team know, as medication can be prescribed to help control it. It is important to drink plenty of water.

## **Sore mouth**

You may develop a sore mouth or gums, or mouth ulcers. Tell your specialist team if this occurs as they can prescribe special mouthwashes and medicines to help. Good oral hygiene is particularly important during treatment. If you already have a dental problem such as cavities or gum disease, see your dentist so it can be treated before chemotherapy starts.

## **Fatigue (extreme tiredness)**

You may become extremely tired during your treatment and some people find this fatigue lasts for several months after their treatment has finished.

If you become anaemic (have a low amount of red blood cells) you may be more prone to fatigue, but it can still occur even if your blood levels are normal. Gentle exercise can help relieve fatigue.

You may also find that the treatment affects your ability to concentrate or think clearly, which can be frustrating, especially if you are working and wish to continue doing so during treatment.

## **Sore eyes and runny nose**

FEC chemotherapy can cause sore, gritty feeling eyes and a runny nose. Sometimes eye drops can be prescribed to relieve the soreness. Or you may notice that your eyes water and you get a runny nose.

## **Skin changes**

Epirubicin may cause your skin to become red and sore where you have previously had radiotherapy, let your specialist team know if this occurs.

You also may experience some darkening and ridging of your fingernails or toenails. However, this is

uncommon and will grow out over the months following completion of treatment. There may be discolouration of the skin over the vein used for the injection. Your skin may also become darker because there is more pigment present during the treatment. This should return to normal once the treatment is finished.

You will be more likely to get sunburn if you have had chemotherapy as your skin will be more sensitive, so it is important to wear a high factor sun cream if you are in the sun.

## **Hair loss**

FEC causes total hair loss in most people. Hair loss can be one of the most distressing side effects of chemotherapy, but you may cope more easily if you know in advance that you will lose your hair.

Hair loss usually happens gradually and begins within two to three weeks of starting treatment. Occasionally it may be much more sudden. You may lose some or all of your body hair, eyebrows and eyelashes, which can be a shock.

Hair loss can be a distressing side effect, although it is important to remember that your hair will grow back after treatment has been completed. Hospitals should be able to either

supply you with a wig or refer you on to somewhere where this is possible. Breast Cancer Care also offers a support service called 'HeadStrong' which offers practical tips on hair and scalp care during cancer treatments. You can find out if there is a HeadStrong service in your area by contacting your nearest Breast Cancer Care Centre.

For some people scalp cooling may be appropriate to prevent or minimise hair loss. This involves wearing a 'cold cap' while you are receiving your chemotherapy. In general the cap is worn on the head for 15 minutes before, during the treatment session and for up to two hours afterwards. It is so cold that it reduces the blood flow to the hair follicles, which can reduce the amount of drugs reaching these follicles. Your specialist or chemotherapy nurse will be able to advise you if scalp cooling would be suitable for you, and if it is available in your hospital.

For more information, see our booklet **Breast cancer and hair loss**.

## **Infertility (temporary or permanent)**

Some younger women may find that their periods become irregular or stop temporarily while they are having chemotherapy. Others may find that they stop completely, which may indicate permanent infertility. This often depends on your age (women around 40 and above are less likely to get their periods back after completing chemotherapy than women under this age). This may result in menopausal symptoms such as hot flushes and vaginal dryness. If you are experiencing menopausal symptoms you may find our **Menopausal symptoms and breast cancer** factsheet helpful.

FEC is less harmful to the ovaries than some other types of chemotherapy, but if you are concerned about your fertility, it is important to talk to your specialist team before treatment begins. If you have any questions about preserving your fertility, or pregnancy after treatment, see our **Fertility issues and breast cancer treatment** factsheet.

Remember that some women can still become pregnant when receiving chemotherapy, even if their periods are affected. This may have a harmful effect on the developing baby, so effective barrier contraception such as a condom must be used.

## **Rare side effects**

### **Heart changes**

Epirubicin may not be suitable for people with existing heart conditions. Heart problems as a result of epirubicin are not common. However, because of the potential risk, before you start chemotherapy treatment your specialist may arrange a heart (cardiac) function test. This could be an ECG (electrocardiogram) test, which takes an electrical recording of your heart, or an ECHO (echocardiogram) to make sure your heart is working normally.

## Further support

If you have any concerns about FEC chemotherapy you can talk to your specialist or breast care nurse. You may also find it helpful to talk to someone who has had a similar experience to you. You can do this one-to-one or in a support group. For more information on individual support or support groups in your area call our helpline.

## 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](http://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](http://www.breastcancercare.org.uk)** or call our helpline on **0808 800 6000** for a printed order form.

## 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](mailto:cancerline@macmillan.org.uk)

Website: [www.macmillan.org.uk](http://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. Their 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.

This factsheet has been produced by Breast Cancer Care's clinical specialists and reviewed by healthcare professionals and people affected by breast cancer.

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## Central Office

### Breast Cancer Care

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Fax 0845 092 0820  
Email [info@breastcancercare.org.uk](mailto:info@breastcancercare.org.uk)

## Centres

### London and the South East of England

Telephone 0845 077 1895  
Email [src@breastcancercare.org.uk](mailto:src@breastcancercare.org.uk)

### Wales, South West and Central England

Telephone 0845 077 1894  
Email [cym@breastcancercare.org.uk](mailto:cym@breastcancercare.org.uk)

### East Midlands and the North of England

Telephone 0845 077 1893  
Email [nrc@breastcancercare.org.uk](mailto:nrc@breastcancercare.org.uk)

### Scotland and Northern Ireland

Telephone 0845 077 1892  
Email [sco@breastcancercare.org.uk](mailto:sco@breastcancercare.org.uk)

## 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](http://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.

**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, RRKZ-ARZY-YCKG, 5-13 Great Suffolk Street, London SE1 0NS. Or donate via our website at [www.breastcancercare.org.uk](http://www.breastcancercare.org.uk)