

Chemotherapy for Bowel Cancer

This factsheet has been written to help you understand chemotherapy and why, when and how this treatment is given. If you have any questions or concerns about any aspect of bowel cancer, please call our **Bowel Cancer Advisory Service** on freephone **0800 8 40 35 40**.

What is chemotherapy?

Chemotherapy is the use of anti cancer, cytotoxic, drugs which act to destroy or control the growth of cancer cells ('cyto' means cell and 'toxic' means to poison). Cancers grow when the normal process of cell division becomes disordered and cells start to multiply abnormally, resulting in a tumour (lump or growth). Chemotherapy drugs work by interfering with the ability of the cancer cell to continually divide and grow.

When is it given?

Chemotherapy can be given at different 'stages' of your treatment. It can be given alone or used alongside other treatments such as surgery and radiotherapy. It can be given using a single drug or as a combination of drugs. Bowel cancer can progress through different 'stages' (see our factsheet **Understanding Bowel Cancer**) and your oncologist (a doctor who specialises in the treatment of cancer) will discuss with you the 'staging' of your cancer and the best way to treat each particular 'stage' of the disease.

Terms used when referring to chemotherapy treatments:

- **Neo- adjuvant:** Chemotherapy that is given before surgery. The aim is to try to reduce the size of the tumour and improve the outcome of the surgery
- **Adjuvant:** Chemotherapy that is given once surgery has removed all the known cancer. It is given for early stage bowel cancer with the aim of reducing the risk of a possible recurrence of the cancer. This is not given as a matter of course but only after discussion with your oncologist and after weighing up the side effects of chemotherapy against the benefits of the treatment
- **1st Line Treatment:** A first course of chemotherapy given for advanced disease
- **2nd Line Treatment:** A further course of chemotherapy given when there has been a recurrence of the disease. This is usually with a different chemotherapy drug from the 1st line treatment
- **Palliative Treatment:** Chemotherapy which is given to alleviate symptoms and to slow the progression of the disease but which is not able to cure the cancer.

How is chemotherapy given?

Chemotherapy can be given in a variety of different ways and routes depending on the chemotherapy drugs used. It is usually given as a planned course of treatments and may be given alongside, or alternating with, radiotherapy.

Each treatment session may last a few hours, days or weeks and will then be followed by a rest period without treatment to allow you to recover from any side effects caused by the treatment. It can be given in hospital by **intravenous injection** either as a single (**bolus**) **injection** or incorporated into a larger volume of fluid and given as an **intravenous infusion/drip** over a longer period of time. It can be given at home in tablet form or using a **portable infusion pump** which delivers a controlled amount of chemotherapy over a set period of time.

Whichever route is used, the drugs will enter the bloodstream and reach all parts of the body. This can mean that normal cells, which are growing and dividing rapidly, can also be affected at the same time as the cancer cells. This can cause side effects. These are usually temporary and will resolve once the normally healthy cells re-grow. However, sometimes there may be permanent damage. The oncologist will discuss this with you before you start on any treatment.

Monitoring treatment

Routine blood tests will be taken at the beginning of the therapy and before each course of treatment. This is to ensure that your blood count (red and white blood cells and platelets) is satisfactory before the chemotherapy is given.

CEA (Carcinogen Embryonic Antigen) levels may be taken at regular intervals throughout the planned course of treatments to monitor the effectiveness of the chemotherapy. Other tests, for example scans, x-rays, kidney function tests may be taken during your treatment. All the tests are to check on your health and to monitor the effectiveness of the chemotherapy.

What are the most common side effects of chemotherapy?

Because chemotherapy targets rapidly dividing cells which are or maybe cancerous, it can also affect other normal dividing cells for example:

- **mucous membrane cells** lining the mouth - causing **mucositis** (a sore and ulcerated mouth); the stomach - causing **nausea** and **vomiting**; and the gastrointestinal tract – causing **diarrhoea**
- **hair** – causing hair to thin or be lost (**alopecia**)
- **bone marrow** (which produces new blood cells) – causing a reduction in white blood cells which are part of the body's defence system for fighting infections (known as **neutropenia**) and in red blood cells – causing **fatigue** and symptoms of **anaemia**

There may be other side effects which are specific to a particular drug and/or to the dosage of the drug. Your oncologist and chemotherapy nurse will provide verbal and written information about the drugs used and explain what side effects to expect.

You can obtain more information about these drugs from our **Bowel Cancer Advisory Service** on freephone **0800 8 40 35 40**

You may find the following additional factsheets helpful:

- **K-Ras and the biological agents**
- **Understanding bowel cancer**

For further information contact the Bowel Cancer Advisory Service on: (Freephone) 0800 8 40 35 40

Email: advisory@bowelcanceruk.org.uk

Website: www.bowelcanceruk.org.uk

Registered Charity Number: 1071038

London office

7 Rickett Street

London SW6 1RU

Tel: 020 7381 9711

Fax: 020 7381 5752

Edinburgh Office

20 Queen Street

Edinburgh EH2 1JX

Tel: 0131 225 5333

Fax: 0131 225 2206

Drug descriptions

Drug	Route	Indication of use	Side effects	NICE status
5-FU	Intravenous (i.v.) Infusion or injection	Adjuvant and Palliative treatment. Widespread use either as a single agent or in combination regime	Mucositis, nausea and vomiting, plantar palmar syndrome (sore and red skin of the hands and feet), diarrhoea, fatigue	The mainstay of bowel cancer chemotherapy treatment for over 50 years. Approved for use both as a sole agent and in combination with other treatments, 1 st line and at all other stages of treatment
Oxaliplatin (Eloxatin®)	Intravenous Infusion	Adjuvant treatment of stage III colon cancer after complete resection of primary tumour and treatment of metastatic (secondary) bowel cancer	Sensory peripheral neurotoxicity (numbness, and pins and needles of the hands and feet), nausea and vomiting, neutropenia, fatigue, hair thinning	Approved for use both as a sole agent and in combination with other treatments, 1 st line and at all other stages of treatment
Capecitabine (Xeloda®) Oral form of 5-FU	Oral (by mouth) as a tablet	Adjuvant treatment of stage III colon cancer and 1 st line treatment of metastatic bowel cancer	Neutropenia nausea and vomiting, plantar palmar syndrome, diarrhoea, fatigue	Approved for use both as a sole agent and in combination with other treatments, 1 st line and at all other stages of treatment
Tegafur-uracil (Uftoral®)	Oral as a tablet	1 st line chemotherapy treatment of metastatic bowel cancer (in combination with calcium folinate)	Neutropenia, nausea and vomiting, plantar palmar syndrome, diarrhoea, fatigue	Approved for use both as a sole agent and in combination with other treatments, 1 st line and at all other stages of treatment. Much less commonly available than Capecitabine
Irinotecan (Campto®)	Intravenous infusion	1 st and 2 nd line treatment of advanced bowel cancer	Acute cholinergic syndrome (increased sweating and saliva production, stomach cramps and diarrhoea), delayed diarrhoea (usually 24hrs post treatment), nausea and vomiting, neutropenia, fatigue, alopecia	Approved as 1 st line combination therapy and 2 nd line single therapy in advanced bowel cancer

Newer forms of treatment

There are non-chemotherapy drugs known as **Monoclonal Antibodies** or Biological treatments which are normally given in combination with chemotherapy and can extend and improve the quality of life. These drugs, with certain exceptions (see below), are less commonly available on the NHS. They are all available privately. You may wish to discuss your suitability for treatment with these drugs with your oncologist.

Drug	Route	Indication of use	Side effects	NICE status
Bevacizumab (Avastin®)	Intravenous infusion	1 st line treatment of metastatic bowel cancer in combination with intravenous 5-FU/folinic acid with or without irinotecan	Hypertension (raised blood pressure), nose bleeds and easy bruising, fatigue, delay in wound healing	Not yet approved, though may be made available on the NHS locally by primary care trusts, on a case by case basis. Currently being re-reviewed by NICE in the 1 st line metastatic setting
Cetuximab (Erbix®)	Intravenous infusion	Treatment for Epidermal Growth Factor Receptor (EGFR)-expressing metastatic bowel cancer that is no longer responding to an irinotecan containing therapy. Only effective for patients with K-Ras wild-type gene. Ineffective for those with the K-Ras mutant gene (see K-Ras factsheet)	Skin rash – common to 80% of patients and often an indication that the treatment is effective	Approved in 2009 for 1 st line combination treatment with chemotherapy agents, specifically for patients whose primary bowel tumour has been removed, who have the K-Ras wild type gene and who have potentially resectable liver only metastases
Panitumumab (Vectibix)	Intravenous infusion	Through the Epidermal Growth Factor Receptor (EGFR) pathway (as with Cetuximab). Effective in patients with the K-Ras wild type gene present in their tumour	Skin rash (as with Cetuximab)	Not approved currently although may be made available on the NHS locally by primary care trusts, on a case by case basis. Licensed for 3 rd line or subsequent use