P.O. Box: 48577, **DUBAI,** U.A.E.
Tel: 04 267 8866, Fax: 04 267 8855
P.O. Box: 457, **SHARJAH,** U.A.E.
Tel: 06 565 8866, Fax: 06 565 6699
E-mail: info@zulekhahospitals.com • Website: www.zulekhahospitals.com

ص.ب: ٤٨٥٧٧، دبي، إ.ع.م.
هاتف: ٨٨٦٦ ٢٦٧ ٠٤، فاكس: ٨٨٥٥ ٢٦٧ ٠٤
ص.ب: ٤٥٧، الشارقة، إ.ع.م.
هاتف: ٨٨٦٦ ٥٦٥ ٠٦، فاكس: ٦٦٩٩ ٥٦٥ ٠٦

Chemotherapy education leaflet

مستشفى زليخة
لأن صحتك غالية
Zulekha Hospital
Your Health Matters

Chemotherapy with Cytotoxic Medicines

This leaflet gives a general overview about chemotherapy. It does not give details about individual chemotherapy medicines or advise about individual cancers. You should discuss your own case and your particular treatments with your doctor. Sources of further detailed information are given at the end.

What is chemotherapy?

The term chemotherapy has come to mean a treatment of cancer by using anti-cancer medicines called cytotoxic medicines (also called cytotoxic drugs).
There are other types of anti-cancer medicines. For example:

- Medicines which block the effects of certain hormones are used to treat some cancers.
- Monoclonal antibodies and other types of medicines which affect the immune system are used to treat certain cancers.

What are cytotoxic medicines and how do they work?

Cytotoxic medicines kill cancer cells or stop them from multiplying. Different cytotoxic medicines do this in different ways. However, they all tend to work by interfering with some aspect of how the cells divide and multiply.

Two or more cytotoxic medicines are often used in a course of chemotherapy, each with a different way of working. This may give a better chance of success than using only one.

There are many different cytotoxic medicines used in the treatment of cancer. In each case the one chosen will depend on the type and stage of your cancer. Research continues to find new medicines, and better medicine combinations. Your doctor will advise the best treatment for your type of cancer, based on evidence from the most recent research trials.

Cytotoxic medicines work best in cancers where the cancer cells are rapidly dividing and multiplying. Most normal cells in the body, such as muscle cells, heart cells, brain cells, and bone cells, do not divide and multiply very often. They are not usually much affected by cytotoxic medicines. However, some normal cells in the body divide and multiply quite rapidly. For example, hair cells, bone marrow cells, and cells lining the mouth and gut. These may be affected by cytotoxic medicines and lead to side-effects (see below). As a general rule, normal cells can renew themselves much better than cancer cells and then can usually recover quite well following treatment.

What are the aims of chemotherapy?

Chemotherapy and other treatments may aim to cure the cancer

A cure is the aim in many cases. Some cancers can be cured with chemotherapy alone. Sometimes chemotherapy is used in addition to another main treatment. For example, you may have surgery to remove a tumour but you may also be given a course of chemotherapy after the surgery. This aims to kill any cancer cells which may have spread away from where the cancer first started (the primary tumour site). Unless treated, these may have developed into tumours at a later time.

Chemotherapy given after a main treatment such as surgery is called adjuvant chemotherapy. Sometimes, chemotherapy is given before surgery or radiotherapy so that these other treatments are likely to work better. Chemotherapy given before another treatment is called neoadjuvant chemotherapy.

Doctors tend to use the word remission rather than the word cured. Remission means there is no evidence of cancer following treatment. If you are in remission, you may be cured. However, in some cases, a cancer returns months or years later. This is why some doctors are reluctant to use the word cured.

Chemotherapy and other treatments may aim to control the cancer

If a cure is not realistic, with treatment it is often possible to limit the growth or spread of the cancer so it progresses less rapidly. This may keep you free of symptoms for some time.

Chemotherapy may be used to ease symptoms

This is called palliative chemotherapy. Even if a cure is not possible and the outlook is poor, a course of chemotherapy may be used to reduce the size of a cancer. This may ease symptoms such as pain or pressure symptoms from a tumour.

How is chemotherapy given?

The medicines usually need to enter the bloodstream to travel to all areas of the body to reach any cancerous cell which may be present.

Intravenous chemotherapy

To get straight into the bloodstream, many cytotoxic medicines are given by injection directly into a vein (intravenous injection).

- Sometimes each dose is just injected into a vein from a syringe and needle.
- Some medicines are put into a bag of fluid which then drips into a vein through a small, thin plastic tube which is inserted into a vein in your arm or hand. This method allows the medicines to be diluted and they are less likely to irritate the vein as they get into the bloodstream. It may take several hours for a dose to drip into the bloodstream. Small pumps are often used to make sure the solution drips into the vein at exactly the correct rate.
- In some cases, a longer thin plastic tube is placed into a deeper vein. This can be a central line in a vein in your chest or a peripheral line in your arm (sometimes called a PICC line). It can be left in place for months until the course of treatment is finished. This means you do not need repeated injections. Medicines can be injected or dripped through the line from time to time when a dose is due. This method of giving chemotherapy is being used more and more. You can also have blood samples taken via the line (which are often needed for testing during a course of chemotherapy treatment). Special care is needed to keep the line clean and free from blockage and infection.
- Sometimes an infusion is given via a line over many days, or even weeks.

Chemotherapy given by mouth

Some chemotherapy medicines can be taken as tablets or liquids by mouth and are absorbed into the bloodstream from the gut.

Other methods

Medicines usually do not get into the brain or spinal cord very well from the bloodstream. So, to treat some cancers of the brain or spinal cord, medicines may be injected into the fluid which surrounds the brain and spinal cord. This is done by a lumbar puncture when a needle is inserted into the space next to the spinal cord in the lower back.

Catheters and Ports in Cancer Treatment

During cancer treatment, your health care team often needs access to your veins to give you

treatments such as chemotherapy, blood transfusions, antibiotics, or intravenous (IV) fluids. They may also need to take samples of your blood for testing. To make these procedures easier, your doctor may recommend inserting a special medical device called a catheter or a port.

Types of catheters

There are several types of catheters. The one you receive depends on many factors, including how long you need to receive cancer treatment, the type of treatment you will be receiving, how easy it will be to care for, and cost.

Peripherally inserted central catheters (PICC): A PICC line is inserted into one of the large veins in the arm near where the elbow bends.

Implantable ports or port-a-cath: A catheter connected to a port is surgically inserted under the skin of the chest, or sometimes the upper arm, by a surgeon or radiologist. .

ADVANTAGES OF Catheters

- Reduce the number of needle sticks in the vein
- Provide chemotherapy or other treatments that last longer than one day (the needle used to access the port can be left in for several days)
- Give more than one type of chemotherapy or other treatment at a time (a double port is used rather than a single port)
- Allow blood testing and treatment on the same day with only one needle stick through the skin in the chest

Caring for catheters and ports

There are special instructions for catheters or ports that reduce the risk of these problems that have tips that remain outside the body, you must take special care of the tube and the skin surrounding the area where the tube exits in the arm or chest **:**

- Wash your hands before you touch the catheter to help prevent infection Never touch the tip of the catheter when the cap is off
- Clean the area around the tube and change any bandages as directed
- Prevent air from getting inside the catheter by making sure the top or clamps are on tightly when the tube is not being used
- Avoid any breaks or cuts in the catheter
- Flush a small amount of fluid into the catheter so it doesnot get blocked, as directed Protect the catheter area from being submerged underwater

In certain situations cytotoxic medicines may be given:

- By injection into a muscle.
- As a cream which is rubbed on to skin.
- As an injection into the chest cavity.
- As an injection directly into a cancerous tumour.

How long is a course of chemotherapy treatment?

Usually a course of chemotherapy is given in cycles. A cycle is a spell of treatment followed by a rest from treatment. For example, you may have a dose of your medicine(s) on one day, or several doses over a few days. You may then have a rest from treatment for 3-4 weeks. This allows your body to recover from any side-effects. This also gives a chance for damaged, normal cells to recover before the next spell of treatment. Treatment cycles are commonly every 3-4 weeks, but vary depending on the cancer being treated and the medicines used.

The length of a full course of treatment is often about six months. So this may consist of about six cycles of treatment over the six months. However, a full course of treatment can vary and may be shorter or longer than six months, and consist of fewer or more cycles.

You may have tests such as scans or X-rays at various times to see how well the treatment is working. These can help to guide a doctor as to how long to continue treatment or even to change the medicines used if the treatment does not seem to be working. You will also have regular blood tests to check on your blood count and may also have other blood tests to check that your liver and kidneys continue to work well and are not being affected by the medicines.

Where is chemotherapy given?

You may have to spend a few hours at hospital for each dose of treatment. Some treatment cycles require a day or so in hospital as an inpatient.

What about risks and side-effects from chemotherapy?

Cytotoxic medicines are powerful and often cause unwanted side-effects. Cytotoxic medicines work by killing cells which are dividing and so some normal cells are damaged too. However, side-effects vary from medicine to medicine. Even with the same medicine, different people can react differently. Some people develop more severe side-effects than others who take the same medicine. Sometimes, if side-effects are particularly severe, a change to a different medicine may be an option.

Some of the most common and important side-effects are listed below. Other side-effects can occur. Your doctor or chemotherapy nurse will be able to discuss with you the likely side-effects you may experience with the particular medicines you will be receiving. Also, you can read a full list of possible side-effects of any medicine on the leaflet from the manufacturer.
At the end of this section there is a checklist of symptoms which you should report straightaway to a doctor if they occur whilst you are on a course of chemotherapy.

Tiredness

Tiredness (fatigue) is a common side-effect. It is likely that you will feel more tired than normal during a course of chemotherapy. You may need to cut back on your normal activities.

Feeling and being sick (nausea and vomiting)

It can be common to feel sick during and after each cycle of treatment. Try to drink plenty of fluids even if you do not feel like it, to prevent lack of fluid in the body (dehydration). Sucking ice cubes is one tip to increase your fluid intake.

Anti-sickness medication will usually help and is commonly taken at the same time as, or just before, a cycle of chemotherapy. There are different types of anti-sickness medication. If one does not work well, a change to a different one may work better.

Effects on the blood and immune system

Cytotoxic medicines can affect the bone marrow. The bone marrow is where you make red blood cells, white blood cells and platelets. Problems which may occur include:

- Anaemia. This means a low level of red blood cells. If you develop anaemia you will feel tired and look pale. You may need a blood transfusion.
- Serious infection. You are more prone to infection if the level of white blood cells goes down too low. This is because you have less ability to fight off bacteria, viruses and other germs. See a doctor straightaway if you develop signs of infection such as a high temperature (fever) or a sore throat. As you have a reduced capacity to fight infection, you may be given a high dose of antibiotic medicines directly into your bloodstream if you develop an infection.
- Bleeding problems. Platelets help the blood to clot when we cut ourselves. If the number of platelets in your blood goes down you may bruise easily and bleed for longer than usual after cuts. See a doctor urgently if you notice these symptoms. You may require a platelet transfusion if your platelet level goes very low.

Prior to each cycle of treatment, it is usual to have a blood test to check on your blood count. This checks the level of your red blood cells, white blood cells and platelets. If any of these are too low, then a treatment cycle may be delayed, the choice of medicines may be altered or you may be given treatment to boost the levels of these blood constituents.

Mouth problems

The cells which line the mouth are affected by some cytotoxic medicines. This may lead to a sore mouth, a dry mouth or other mouth problems. Routine good mouth care will help to prevent mouth problems from developing or from becoming more serious. If possible, do the following either yourself or with the help of a carer:

- Brush your teeth twice a day with a soft toothbrush and fluoride-containing toothpaste.
- Rinse your mouth after meals and at night. Use water or 0.9% sodium chloride solution (saline or salt water). You can make a fresh sodium chloride solution for each rinse by dissolving half a teaspoon of salt in 250 ml of fresh water. Use cool or warm water - whichever your prefer.
- Remove any debris that you can see in your mouth or on your tongue by gentle brushing with a soft toothbrush. If possible, do this regularly but mainly after meals and at bedtime. Foam sticks are an alternative if brushing with a soft toothbrush causes pain or bleeding.
- Remove dentures at night. Clean dentures with a soft toothbrush and toothpaste. Soak overnight in a denture solution. Rinse before use the next day.

If you develop a dry mouth then simple measures such as frequent sips of water and chewing sugar-free gum will often help and be all that is needed in many cases. Artificial saliva or medication to stimulate the salivary glands is sometimes used, which your doctor can prescribe for you.

Hair loss

Some cytotoxic medicines damage the hair-making cells. Some or all of your hair may fall out. This usually occurs 2-3 weeks after a course of treatment starts. Body hair and eyelashes may also fall out in addition to scalp hair. After the course of treatment has finished, the hair will usually regrow within 4-12 months.

Constipation

This may be helped by eating plenty of foods high in fibre and having lots to drink. A laxative may be needed in some cases.

Diarrhoea

This is a side-effect from some medicines . You should increase the amount that you drink if you develop diarrhoea. If it persists or becomes severe, you should tell your doctor. Anti-diarrhoeal medicines may be needed and you may even need to be admitted to hospital for a drip of fluid if you become dehydrated due to severe diarrhoea.

Nerve problems

Some medicines can affect nerves. This may lead to a lack of sensation in parts of the body such as the fingers or toes, pins and needles or weakness of muscles. Tell your doctor if any of these symptoms occur.

Fertility

Some chemotherapy medicines can affect fertility in both men and women. Sometimes this is temporary and sometimes it is permanent. If this is a concern, one option may be for men to store sperm or women to store eggs (ova) before chemotherapy treatment begins. These can be frozen and may be able to be used in the future if you wish to have a pregnancy. Some women develop an early menopause when taking some cytotoxic medicines.

Some other points about chemotherapy

Before starting chemotherapy

Depending on the medicines used, you may have a number of baseline blood tests to check that your liver and kidneys are working well. You may also have a heart check (an electrocardiogram (ECG) and/or echocardiogram) and a check on your lung function. This is because some medicines may affect these organs. These tests may be repeated during treatment, to check that these organs continue to work well.

Pregnancy and contraception

Although some cytotoxic medicines can reduce fertility, pregnancy is still possible if you are sexually active. However, cytotoxic medicines can damage sperm, eggs (ova) and an unborn baby. Therefore, it is not advisable to become pregnant if you are a female who is having chemotherapy, or a female partner of a male who is having chemotherapy. If you are sexually active you should use reliable contraception.

Check with your doctor how long to continue contraception for after treatment is finished.

Chemotherapy and later cancer

There is a very small risk that cytotoxic medicines may cause another form of cancer much later in your life.
Some cytotoxic medicines can:

- Interfere or react with other medicines. Check with your doctor about any other medicines that you take.
- Be affected by alcohol. Check with your doctor if you can drink alcohol with your treatment.
- Make you dizzy or too ill to drive. It is usually best not to drive yourself to and from hospital for chemotherapy treatment.