



COMMON SIDE EFFECTS OF CHEMOTHERAPY

This information sheet is for your general information and is not a substitute for medical advice. You should contact your doctor or other healthcare provider with any questions about your health, treatment or care.

Chemotherapy is administered to kill cancer cells (fast-growing cells), but as the drugs travel throughout the body, they can damage healthy cells, resulting in side effects. Chemotherapy drugs have a wide spectrum of potential side effects. The specific side effects you may experience will depend on the specific drugs you receive. It also varies due to individual differences between patients.

Side effects due to bone marrow suppression

Bone marrow is responsible for blood formation. As it mainly consists of fast growing cells, it is very sensitive to the effects of chemotherapy. Three types of blood cells may be affected:

- *Red blood cells* are responsible for oxygen transport.
- *White blood cells* provide protection against infection.
- *Platelets* are partly responsible for blood clotting.

As chemotherapy may affect any of these abovementioned cells, blood tests may be done at regular intervals to monitor the number of cells in your blood stream. If the cells are diminished, your doctor will either postpone your next treatment or reduce the dose of chemotherapy you are to receive. Medication is sometimes administered to speed up the bone marrow's recovery, although the body consists of fast-dividing cells and will usually recover by itself.

Anaemia means the body's red blood cells are reduced. It may make you feel short of breath, weak and tired. Dizziness or feeling faint, with a 'pounding' heart may also be experienced. Report any of these side effects to your doctor.

Things you can do to combat the symptoms of anaemia:

- Get plenty of rest.
- Limit your activities and ask for help when you need it.
- Eat a well-balanced diet that includes foods that are rich in iron such as:
 - dark green leafy vegetables
 - iron-fortified bread
 - beans
 - nuts
 - apricots
 - prunes
 - raisins.
- When sitting or laying down, get up slowly as this will help prevent dizziness.

A **low white blood cell count** is associated with an increased risk of infection. Practical guidelines to follow when your white blood cell count is low:

- Wash your hands often during the day.
- Take a warm bath, shower or sponge bath every day.
- Maintain good oral hygiene care.
- Do not squeeze or scratch pimples.

- Maintain good hygiene by cleaning skin around the anus gently but thoroughly after each bowel movement.
- Try to avoid:
 - people who have contagious conditions such as cold, flu, measles or chicken pox
 - crowds
 - children who have recently received 'live virus' vaccines.
- Avoid cuts and scratches by wearing protective gloves when gardening. Use an electric shaver instead of a razor to prevent cuts. Do not cut or tear cuticles off your nails and be careful not to cut or nick yourself when using scissors, needles or knives. If this does happen, clean cuts and scrapes right away.
- Avoid drinking water which has been left standing.
- Do not eat raw fish or other seafood, meat or eggs.
- Avoid contact with animal litter boxes and waste.

Call your doctor right away if you experience any of the following:

- Fever of 38°C or more
- Chills
- Sweating
- Loose bowel movements
- Frequent urgency to urinate or a burning feeling when urinating
- A severe cough
- Unusual vaginal discharge or itching
- Redness, swelling or tenderness of a part of the body
- Sinus pain or pressure
- Earaches, headaches or stiff neck
- Blisters on lips or skin
- Mouth sores

If your blood does not have enough **platelets**, you may bleed or bruise more easily than usual, even without injury. Be aware of:

- small, red spots under the skin
- reddish or pinkish urine
- black or bloody bowel movements
- bleeding from your gums or nose
- vaginal bleeding that is new or lasts longer than a regular period
- headaches or changes in vision
- warm to hot feeling of the arm or leg.

The following guidelines may diminish the risk for bleeding:

- Use a very soft toothbrush to clean your teeth.
- When cleaning your nose, blow gently into a soft tissue.
- Use an electric shaver instead of a razor.
- Take extra care not to cut or nick yourself when using scissors, needles, knives or tools.
- Be careful not to burn yourself when ironing or cooking.
- Avoid contact sports and other activities that might result in injury.
- Do not take any aspirin and anti-inflammatory drugs.
- Ask your doctor if you should avoid sexual activity.
- Before drinking any alcoholic beverages, check with your doctor whether it is safe to do so.

Fatigue

Feeling tired and lacking energy is the most common symptom reported by cancer patients. You may feel generally tired or may tire very easily after doing normal everyday tasks. This tiredness may last days, weeks or even months.

How do I cope with fatigue?

- Plan your day so that you have time to rest, take short naps or breaks.
- Save your energy for the most important things.
- Try easier or shorter versions of activities you enjoy.
- Allow others to do some things for you that you usually do.
- Try to maintain a healthy sleep routine:
 - Sleep seven to eight hours each night.
 - Have regular times to go to bed and wake up.
- Light exercise such as short walks or yoga can boost energy levels. Before starting any exercise, please discuss with your doctor to get their approval.
- If exercise has been approved by your doctor, avoid exercising late in the evening.
- Eat as well as you can and drink plenty of fluids. Eat small amounts at a time.
- Avoid caffeine.
- Try activities such as meditation, prayer, guided imagery or visualisations.
- Join a support group.
- Keep a diary of how you feel each day.
- Report any changes in energy level to your doctor or nurse, such as:
 - feeling too tired to get out of bed for a 24-hour period
 - confusion, dizziness, losing your balance or falling
 - problems waking up
 - problems catching your breath
 - Tiredness that seems to be getting worse.

Nausea and vomiting

Nausea and vomiting are some of the most dreaded side effects of chemotherapy. Thanks to the development of powerful new anti-emetic or anti-nausea drugs, uncontrolled vomiting is rarely seen today. Although not all anti-nausea drugs are equally powerful, all patients receive some sort of anti-nausea medication to prevent nausea before starting chemotherapy. These drugs may also be given if nausea and vomiting occur in spite of the preventative measures. It is available in the form of a pill or injection. Suppositories may be useful if you battle to keep oral medication down.

What can I do if I experience nausea and vomiting?

- Eat small meals as well as frequent snacks between meals.
- Do not skip meals or snacks.
- Eat foods that you like, or those that sound good to you, but try to avoid eating favourite foods whilst nauseated as this may make these foods less appealing.
- Frequently sip fluids throughout the day. Eat foods cold or at room temperature as it helps to decrease its smell and taste.
- Light, bland foods are usually better tolerated than rich, fatty or spicy foods.
- Eat and drink slowly.
- Chew your food properly for easier digestion.
- Drink cool, clear, unsweetened fruit juices and still ginger ale (ginger and lemon flavours are generally effective against nausea).
- Suck on mints.
- Prepare and freeze meals in advance to ensure that you have them ready on days that you feel unwell.
- Try to avoid odours that bother you.
- If nausea is a problem in the morning, try eating dry foods (like a dry biscuit) before getting up.
- Rest, but do not lie flat, for at least two hours after you finish a meal.
- Avoid eating for at least two hours before treatment or eat a light meal only.

- Breathe deeply and slowly when you feel nauseated.
- Distract yourself by listening to music or watching a movie or television show.
- Use relaxation techniques.
- Wear loose-fitting clothes.
- If you are experiencing vomiting, wait for the vomiting to stop before eating or drinking anything. Once vomiting stops, start by taking in small amounts of clear liquids. The amount can be increased as tolerated.
- Sit upright after vomiting.
- Contact your doctor if you experience any of the following:
 - Inhaled some of the vomited material
 - Vomiting continues over a period of days
 - Vomit contains blood or material that looks like coffee grounds
 - Cannot take in more than a cup of liquid in a day or haven't eaten for more than two days
 - Unable to take medication
 - Dizziness, weakness or confusion
 - Dark yellow urine and decreased urination

Hair loss

Hair loss is a common side effect and may be very traumatic for you as a patient. Not all drugs cause hair loss. Your doctor will be able to inform you of your chances of losing your hair. When hair loss occurs, the hair might become thinner or fall out entirely. Hair loss may occur on all parts of the body.

Hair loss may begin two to three weeks after the first treatment or only after a few treatments. Many patients' scalps become sensitive before losing their hair. Hair may fall out gradually or in clumps.

Some people choose to wear turbans, scarves, caps, wigs or hairpieces. Develop your own style and be creative. It is important to be comfortable with your own choice.

The hair usually grows back after treatments are over, sometimes with a different colour or texture.

How can I care for my scalp and hair during chemotherapy?

- Use a mild shampoo, wash gently and pat dry afterwards.
- Use a soft brush and brush your hair gently.
- Use low heat when drying your hair.
- Have your hair cut short.
- Use sunscreen, hat or scarf to protect your scalp from the sun. Also use a moisturising lotion to prevent it from drying out.
- Avoid curlers and tight elastic bands to set your hair.
- Avoid dyeing, getting a perm or relaxing your hair.
- Wear a protective cap at night, as a lot of heat may be lost through an unprotected scalp.

Mucositis

Some anti-cancer drugs may cause **sores in the mouth and throat** called stomatitis or mucositis. These problems may be effectively treated with the proper medication.

General measures that may be taken to alleviate mucositis:

- Avoid spicy foods and food with a coarse texture like raw vegetables, dry biscuits or nuts. Also avoid food that is too hot or cold. Pureed foods, especially unflavoured yoghurt or buttermilk, may help.
- Remember that sour-tasting foods and liquids may cause mouth and throat irritation.
- Do not smoke, chew tobacco or drink alcohol.

- Maintain good mouth hygiene by brushing your teeth thoroughly but gently with a soft toothbrush at least four times a day (after meals and before bedtime). If you floss, ask your doctor if you should stop or continue – if you're allowed to continue, floss your teeth gently.
- Use fluoride toothpaste.
- Rinse your mouth regularly with salt and bicarbonate of soda solution, especially after brushing your teeth. Use half a teaspoon of salt and half a teaspoon of bicarbonate of soda in a glass of warm water. Rinse with clean water afterwards.
- When using a commercial mouthwash, use only alcohol-free solutions, as alcohol may dry out your mouth's mucous membranes.
- If you are prone to developing mouth sores, try sucking on an ice cube while receiving chemotherapy.

Diarrhoea

If diarrhoea is a problem, follow these guidelines:

- Drink plenty of fluids. A clear liquid diet (water, tea, apple juice, thin soup and gelatine) will give your bowel time to recover.
- Eat small, but frequent meals.
- Avoid hot or very cold liquids, acidic drinks, and fried, greasy or highly-spiced foods.
- Eat foods rich in potassium such as bananas, oranges, potatoes, peach and apricot nectars.
- Avoid high-fibre foods like beans and cabbage that may aggravate cramps and flatulence and lead to diarrhoea.
- Avoid milk and milk products, including ice cream or eat lactose-free dairy products.
- Avoid consuming pastries, candies, rich deserts, jellies, preserves and alcohol.
- Avoid sugar-free gum or candies and desserts made with sugar alcohol (i.e. sorbitol, mannitol or xylitol).
- Avoid the use of tobacco.
- Only take medication for diarrhoea if, and as prescribed.
- Take note of the amount and frequency of bowel movements.
- Drink at least one cup of liquid after each loose bowel movement.
- Start small, regular meals if diarrhoea keeps getting better after a day or two.
- Take special care to keep the skin surrounding the anus clean and intact, dampened toilet paper or baby wipes can be used to clean yourself.
- Anal discomfort can be eased by sitting in a tub of warm water.
- Applying of petroleum jelly to the anal area may also help.
- Contact your doctor if you experience any of the following:
 - Loose bowel movements several times a day or for one to four days, depending on instructions given when treatment started
 - Blood in the stool or around anal area
 - Fever
 - New stomach pain, cramps or a swollen abdomen
 - Lack of urination for 12 hours or more
 - Inability to drink liquids for 24 hours or more
 - Constipation for several days, and then start having small amounts of diarrhoea or oozing of liquid stool

Constipation

Constipation is a common side effect of both chemotherapy and anti-nausea drugs. Various laxatives may be prescribed. Your doctor will advise on the best one according to the nature of your constipation.

General measures that may be taken to avoid constipation:

- Drink plenty of fluids to help loosen the bowels. Hot drinks may increase bowel action best.
- Increase the fibre content of your diet. Whole-wheat bread, fresh and stewed fruit and vegetables contain lots of fibre.
- Try to maintain regular eating times.

- Avoid food and drinks that cause gas such as apples, avocados, beans, peas, cabbage, broccoli, milk and fizzy drinks until constipation is gone.
- Get some exercise every day as discussed with your doctor.
- When you feel the need to pass a stool, do not ignore the impulse and try to get into a fixed and healthy routine.
- Contact your doctor if you experience any of the following:
 - No bowel movement in three days (or a certain period of time your doctor or nurse may mention before treatment starts)
 - Blood in or around the anal area or blood in the stool
 - No bowel movement in a day or two after taking a softener or laxative
 - Stomach cramps or vomiting that doesn't stop
 - Loose or watery stools

Skin and nail side effects

Chemotherapy may lead to various skin problems, including redness, rashes, itching, peeling, dryness and acne. Keep your skin soft by using bath oils and moisturising creams. Chemotherapy may cause the skin to darken all along superficial veins and in skin creases. Your nails may also become darkened, yellow, brittle or cracked. They may also develop vertical lines or bands.

Sensitivity to sunlight may increase. To protect yourself, follow these guidelines:

- Avoid direct sunlight between 10h00 and 16h00.
- Use sunscreen lotion and a lip balm with a sun protection factor.
- Wear long-sleeved cotton shirts, long pants and a hat with a wide brim.

Radiation recall means that the skin's reaction in a previous radiation area recurs when chemotherapy is administered. It is a rare occurrence and in severe cases, skin may blister and peel. Report this to your doctor.

Kidney and bladder side effects

Always drink plenty of fluids a few days before and after chemotherapy to ensure good urine flow and to help prevent problems.

Report any of the following:

- Pain or burning when you urinate
- Frequent urination
- Not being able to urinate
- A feeling that you must urinate right away
- Reddish or bloody urine
- Fever and chills, especially shaking

Remember that chemotherapy may **change the colour and odour of your urine**. This usually stops within a few days.

Nervous system side effects

Some chemotherapy drugs may cause side effects that are painful. Some may also damage nerves, leading to burning, numbness and tingling or shooting pains, most often in the fingers and toes. Chemotherapy may interfere with certain functions in your central nervous system, causing tiredness, confusion and depression. It will usually go away once the chemotherapy dose is lowered or you finish your chemotherapy. Some drugs may also cause headaches, muscle pains and stomach pains.

If indicated, your doctor will prescribe pain medication. The goal of pain control is to *prevent* pain that can be prevented and to *treat* pain that can't be prevented effectively.

To reach this goal,:

- take your pain medication on a regular schedule
- do not skip doses
- try using relaxation exercises
- if the pain 'breaks through', use fast-acting medication as prescribed by your doctor in addition to your regular painkillers.

Reproductive system side effects

Chemotherapy may, but does not always, affect the **sexual organs**.

For men, it is important to note the following:

- Ask your doctor if there is a likelihood that the chemotherapy will affect your ability to father a child and discuss the possibility of sperm storage before treatment.
- Use a condom during sexual intercourse for the first 48 hours after the last dose of chemotherapy.

For women, it is important to note the following:

- Chemotherapy affects the ovaries, reducing the amount of hormones they produce. It may therefore bring on menopause with associated hot flushes and vaginal dryness.
- In some women, menstrual periods become irregular or stop completely.
- Infertility caused by chemotherapy may be either temporary or permanent depending on the type of drug, the dosage given and the woman's age. As suppression of the woman's reproductive system is not always complete, and as pregnancy during chemotherapeutic treatment needs to be prevented, birth control is still important. Discuss your options with your doctor.

Chemotherapy's effect on your sexuality may be extensive. In addition to the direct effects on the reproductive organs and all the associated symptoms, worries about changes in physical appearance may cause stress. Fatigue or general deterioration secondary to the condition or treatment may play a role. Repeated hospitalisation and loss of privacy, as well as anxiety about health, family or finances place further stress on intimate relationships. Honest communication between you and your partner, as well as mutual understanding of your changing circumstances, may help to ease tension. If it persists, ask your doctor or counsellor for help.

Other symptoms

Some people experience flu-like symptoms a few hours to a few days after chemotherapy. Muscle and joint aches, headache, tiredness, nausea, slight fever (usually less than 38°C), chills and poor appetite may occur, usually lasting from one to three days.

Your body may retain fluid when you are having chemotherapy. Swelling or puffiness in your face, hands, feet or abdomen will be experienced. Avoid table salt and foods that have high salt content to prevent further retention.

General measures

The following activities may be useful in assisting you to cope with chemotherapy. Please discuss this with the staff at your treatment centre.

- Television, radio, reading, movies, needlework or puzzles
- Imagery and visualisation
- Muscle tension and release and rhythmic breathing
- Physical exercise
- Massage therapy
- Psycho-neuroimmunology (the mind's influence and effect on the body and immune system)
- Meditation yoga
- Hypnosis

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