Supportive care in lung cancer

WALCE
Women Against Lung Cancer in Europe

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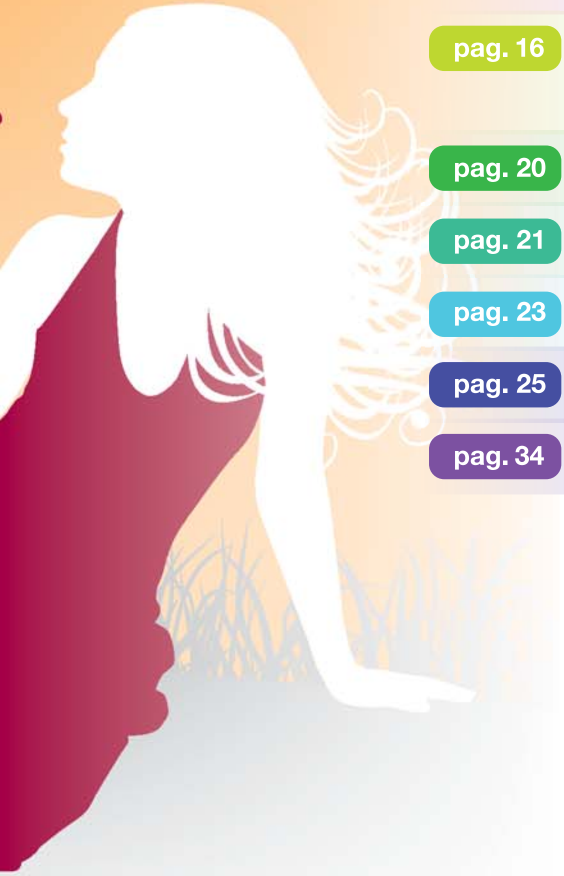
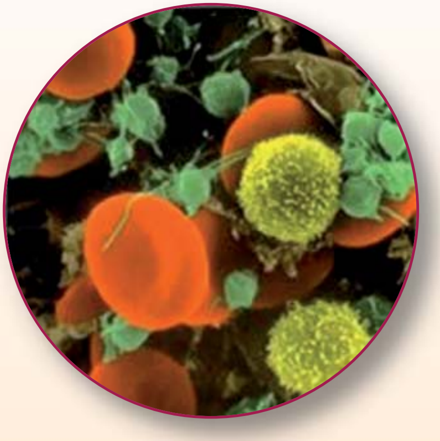
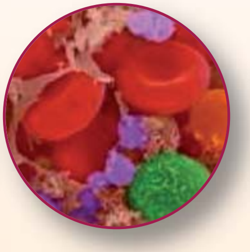


1. Role of white blood cells and hemoglobin

Bone marrow produces three major blood components:

- Red blood cells, which carry oxygen to cells throughout the body
- White blood cells, which fight infections
- Platelets, which help blood clot and stop bleeding





Chemotherapy, radiotherapy and targeted therapies (with minor intensity compared with chemotherapy) can destroy some of the bone marrow cells and fewer blood cells are produced.

Haematological toxicity often requires the discontinuation of therapy and/or a dose reduction. It is up to the doctor to assess the scale and prescribe the appropriate measures.

2. Neutropenia

LEUCOPENIA: reduction of white blood cells number.
NEUTROPENIA: reduction of neutrophil number, which are one type of white blood cells, especially important in fighting infections.

In many cases haematological toxicity is asymptomatic (it does not cause any sign or symptom) and is highlighted only by blood tests periodically carried out.

In most cases, neutropenia caused by the chemotherapy occurs around the fifteenth day after receiving treatment. This timing varies depending on the treatment and in any case, the day in which there is an increased risk of blood components lowering is identified as the ***nadir***.

LEUCOPENIA (and **NEUTROPENIA**) decrease the body’s ability to fight infections.

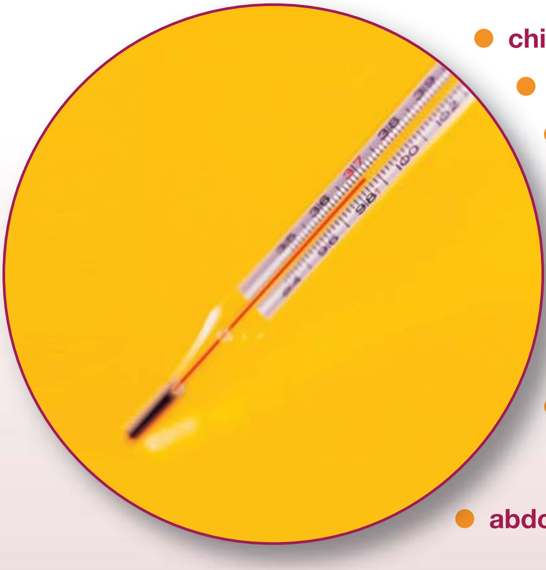
The reaction to this event depends on the extent of values decreasing (white blood cells and/or neutrophils number reduction) and on the person’s general conditions.

LIGHT	MODERATE	SEVERE
1500-1000/µL	1000-500/µL	< 500/µL

Severity of neutropenia based on the neutrophils number detected by blood test.

Infections can begin in almost any part of the body (mouth, skin, lung, intestinal or urinary tract, genital apparatus, etc.) and can be associated with fever.

Be alert to the signs and symptoms of infection and report to the doctor immediately:



- **fever of 100.5 F (38.5°C) or greater**
- **chills**
- **sweating**
- **diarrhoea (it can also be a side effect of the therapy)**
- **burning feeling when you urinate**
- **cough (not present before or with different characteristics i.e. more sputum)**
- **redness and pain around the insertion of central access device (if it is present)**
- **abdominal pain**

Suggestions in cases of Neutropenia

In some cases the doctor may prescribe a preventive antibiotic therapy (i.e. to prevent a possible infection) and/or therapy (vials mostly to be injected subcutaneously) with growth factors that boost white blood cell production in the bone marrow.

What are white blood cell growth factors?

White blood cell growth factors are drugs that stimulate the bone marrow to produce more white blood cells. Growth factors are proteins which are produced naturally in the body and they can also be made as a drug.

The growth factors may decrease the possibility of developing an infection, but they do not prevent all infections. Therefore, it is important to follow the suggestions listed on page 11 and report to the doctor possible signs/symptoms of infection (see the previous page) even if you are correctly running therapy with growth factors.

In Italy, there are different types of white blood cell growth factors

- **lenograstim**
- **filgrastim**
- **pegylated filgrastim**

These drugs all work in a similar way; pegylated filgrastim has had a substance added that helps the drug to work for longer. It is up to the doctor the prescription of one of these drugs.

How to do therapy with white blood cell growth factors

The drug need to be stored in the fridge. Before administering it should be stored at room temperature for several minutes. Do not shake the vial or syringe or the appropriate administration device before injecting.

The frequency of drug administration will be indicated by the doctor. General instructions:

- drug is given daily (for up to 14 days, if indicated by the doctor)
- pegylated filgrastim is administered every 21 days (with the same schedule of most chemotherapy cycles)

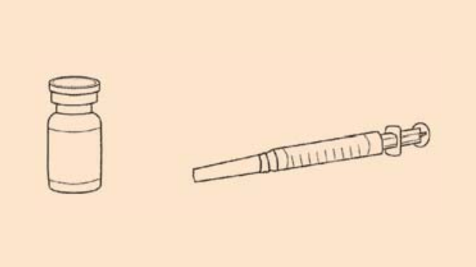
Most of white blood cell growth factors are ready for the use within an appropriate device called SureClick or pre-filled syringe.

If the drug prescribed is in a vial, follow the directions given in the figure below.

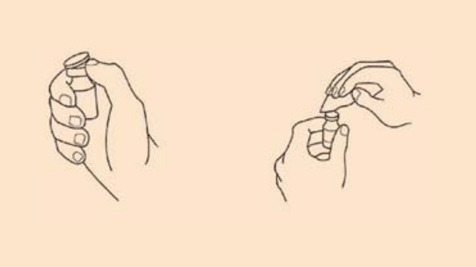
Vial plunger

How to prepare the syringe for injection

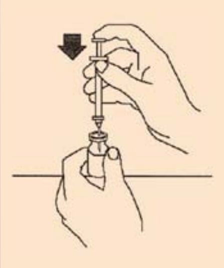
1 Find a clean flat working surface, such as a table. Allow the mixture to reach room temperature (few minutes).



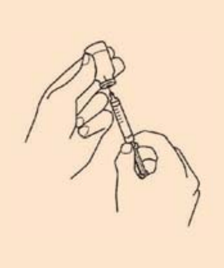
2 Take the cap off the vial. Clean the rubber stopper with cotton ball in alcohol.



3 Push the plunger of the syringe down and inject the air from the syringe into the vial.



4 Withdraw the vial contents into the plunger.



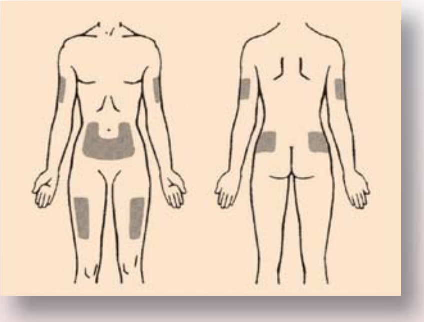
Who performs the injection must wash his hands with soap.

Injection

Where to make an injection

Cleaning out the body area where the injection is made with alcool swabs or cotton ball in alcohol or disinfectant

Once prepared the syringe, find the area easier for you.



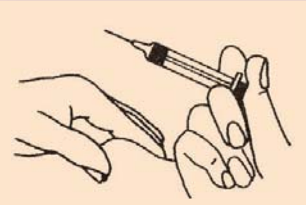
The injection can be made in different body sites: choose an area and disinfect it before inserting the needle.

The subcutaneous injection is easy to give, is not dangerous and can be also made by not medical or nursing staff.

Injection

How to make the injection:

1. After disinfecting the skin, lift a skin fold with the fingers.
2. Tilt the syringe at a 45° angle and insert the needle into the skin. Press slowly the plunger. If you see blood in the syringe, stop the injection and do it in another area.
3. After the injection remove the needle at the same angle it was entered.



Side effects caused by these drugs

When these drugs are administrated, the amount of white blood cells increases greatly: for this reason they can cause side effects even though they are a naturally occurring substances.

People react to drugs in different ways, so it is not possible to predict them, but generally these are well tolerated drugs and side effects are well controlled and short-term.

- Bone and muscle pain: some people have discomfort or a dull ache in the bones of the back, pelvis, arms or legs. This goes away when the growth-factor injections stop. Some massages in the afflicted area may give you some relief, as the use (after referring to the doctor) of an anti-inflammatory pain medication.
- Red, itchy skin around the area in which the injection is given: usually this reaction disappears very quickly.
- Generalized allergic reaction: with fever, chills, shortness of breath, accelerated heart beats and fluid retention. It is important to inform the doctor; it may be useful to take paracetamol and if necessary, proceed to the nearest emergency room.
- Nausea, vomiting, diarrhoea: these side effects occur seldom if ever (you can have some hint on: “Targeted therapies – How you can manage the most common side effects”).

Useful suggestions in case of leucopenia/neutropenia

- wash your hands often during the day (especially before your meals and after you use the bathroom)
- stay away from people who have infections (colds, flu, measles, etc.)
- avoid crowds (cinemas, public transports, bars, theatres)
- wear gloves when gardening or cleaning up animals or your children (eg in changing their diapers)
- do not use any medicine that might modify your immune system before consulting the doctor

Febrile neutropenia

Febrile neutropenia occurs when body temperature is even once at 38.5°C (100.5 F) or greater or a persistent temperature is higher or equal to 38°C, which accompanies the neutrophil total number below 500/mL. The concomitance of fever and neutropenia is to be taken into consideration: if the doctor has reported a neutrophil reduction revealed by your blood tests, it is essential to point out the rise in body temperature.

3. Anemia

ANEMIA may give one or more of the following disorders:

- **fatigue**
- **shortness of breath (named dyspnea)**
- **paleness**
- **tendency to feel cold**
- **dizziness**

How to cope with disorders related to anemia?

- allow time during the day for periods of rest
- limit your daily activities. Do only the things that are most important to you. Ask family, friends and neighbour to pitch in with activities, such as child care, shopping, hose work or driving
- talk with the doctor or nurse about a program of regular exercise
- eat a well-balanced diet (not just eating more red meat you will raise your blood red!) and drink plenty of liquids
- get up slowly to help prevent dizziness after sitting or lying down

In case of anemia, the doctor may prescribe treatment (vials mostly to be injected subcutaneously) with red blood cell growth factors namely drugs that help red blood cell production by the bone marrow and/or one or more blood transfusions.

What is erythropoietin?

The erythropoietin is a type of protein that occurs naturally in the body. It stimulates the bone marrow to produce red blood cells. It can also be made as a medicine.

In some cases the doctor may recommend erythropoietin for anemia. The erythropoietin (that can be given with radiotherapy or chemotherapy) is not a substitute for blood transfusions.

There are two types of erythropoietin working in similar ways.

- **epoetin**
- **darbepoetin**

The darbepoetin has a pharmacological profile that allows it to remain active longer.

However it is up to the doctor the prescription of one of these drugs.

Why in some cases the erythropoietin is useful?

When chemotherapy and/or radiotherapy lead to a decreased red blood cell number as a result of a slowdown in their production in bone marrow, there is **anemia**. This may be asymptomatic (ie only a confirmation during your regular blood tests) or cause symptoms such as fatigue or breathlessness (see "anemia" page 12).

Towards the end of the treatment the red blood cell number slowly goes up again, but this may take some time. It takes about 2–3 weeks for the treatment to begin to raise your red blood cell level.

How is erythropoietin given?

Erythropoietin is normally given by subcutaneous injection (see Figure Injection: “Where to make an injection and Figure: How to make an injection, page 9).

The therapy administration frequency and duration will be adviced by the doctor. As a general information, the erythropoietin may be administered daily (for a total number of days indicated by the doctor), weekly or every 3 weeks.

Usually the erythropoietin use is continued up to one month after the end of the therapy (chemotherapy or radiotherapy), but the duration of the therapy with erythropoietin is still determined by the doctor on the basis of red blood cells and hemoglobin values.

In some cases the doctor prescribes a treatment with iron in addition to the erythropoietin.

Following advices on page 9 or doctor's advices (or nursing staff), the subcutaneous injection can be made by yourself or by a person caring for you.

Which are the possible side effects of erythropoietin?

The amount of erythropoietin that occurs naturally in the body is very small. When erythropoietin injections are given, the amount in the body increases greatly. For this reason it causes side effects, even though it is a naturally occurring substance. The side effects are not usually severe however.

- Flu-like symptoms: such as joint pains, weakness, dizziness and tiredness. These are more likely to occur at the start of your treatment. The doctor may prescribe a painkiller, such as paracetamol, to help with these symptoms.
- Headache

- High blood pressure: let the doctor know if you are taking medication for high blood pressure and, in the case you have the instrument to measure it at home, if there is an increase pressure after the start of erythropoietin therapy. The doctor will closely monitor these values during your regular visits.
- Skin irritation: redness, itching may occur at the injection site. This effect can be reduced by giving the injection in different places. (see Figure Injection: "Where to make an injection page 9).

Many studies show benefits of erythropoietin in patients with cancer. There are also studies that show growth tumor and an increase rate of **thrombotic events** in association with the use of this drug. These results are being reviewed by the drug safety authorities. In the meantime there is no doubt that some people with cancer will benefit from having erythropoietin. The prescription of the erythropoietin treatment is based on subjective evaluations made by the oncologist for each individual person.

Blood transfusion

Blood transfusions are a simple way of correcting anemia. The symptoms related with anemia (see page 12) are often relieved quickly after having the transfusion, giving a benefit to the quality of life over the next 24 hours. The beneficial effects of a blood transfusion can be temporary and some people may need further transfusions.

Having a blood transfusion

Before the first blood transfusion is given, the blood group must be controlled even if you already know it. This procedure ensures that the blood you are given will not make you unwell. The result will be included in your medical record for any future blood transfusions.

The transfusion is made intravenously, using an arm venous access or the central venous access.

Blood for transfusion is stored in small plastic bags. Each bag is about a pint (half a litre). Transfusions usually involve giving 1-2 units of blood depending on how anaemic you are and on the prescription of the doctor. Each unit is given over a period of 1–2 hours. If you need several units of blood you may need to stay in hospital overnight. However, a transfusion of only 1–2 units of blood can usually be given to you as a daypatient.

Possible side effects related with blood transfusion

During the transfusion you may have your temperature, pulse and blood pressure increased: nursing staff will be checked regularly by the nurses to detect any reaction to the blood. Common side effects that can occur are headaches and skin rash. These effects can be relieved by drugs such as paracetamol (depending on doctor prescription).

Many people worry that they may get an infection from a blood transfusion. All blood is carefully screened before the use and infections are extremely rare.

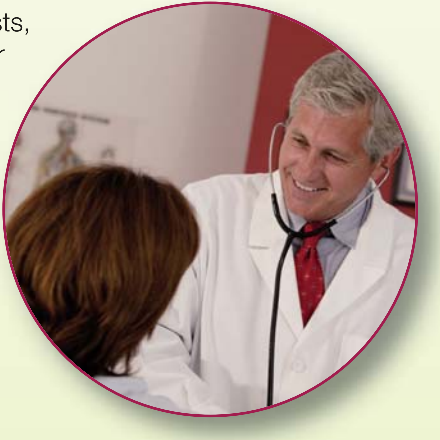
4. Nausea and Vomiting

Nausea and vomiting are disorders often occurring at the same time, but they are 2 different clinical problems. **Nausea** is an unpleasant feeling, which is not always followed by vomiting; it is an unease or discomfort under the sternum (the bone plate of the central rib cage), at the level of throat or spread throughout the abdomen (belly). Other symptoms that may happen along with nausea are increased saliva (spit), dizziness, light-headedness, (called dysphagia), skin temperature changes and a fast heart rate (tachycardia).

Vomiting (emesis) is a mechanism through which the body expels the toxins and happens when your stomach and abdomen muscles contract (squeeze) and push the contents of your stomach up through your mouth. Sometimes you just have conati, namely muscle efforts without release of material.

Apart from drugs you are receiving and/or radiation therapy, nausea and vomiting may also depend on different factors including your individual response, your disease, concurrent infections, your psychological and emotional state.

If nausea and vomiting ONLY appear when you go to the hospital for visits and tests, indicating your anxiety and fear for news on your disease and/or therapy and the results of examinations, the best way to handle this anticipatory nausea is through anxiolytics (benzodiazepines), always with a doctor's prescription.



There are drugs that help relieve nausea and vomiting (antiemetics). Different antiemetics work for different people. It may be necessary to try more than one before you get relief.

If nausea and vomiting are associated with chemotherapy can be:

- An acute start: just few minutes after the chemotherapy administration, with a maximum after 5-6 hours and regression in the first 24 hours
- A delayed start: more than 24 hours after administration of chemotherapy. For example, after a drug such as cisplatin (a chemotherapy often used in the treatment of lung cancer), nausea and vomiting can be intense after 48-72 hours after dosing and last up to 6-7 days
- Advanced: namely influenced by previous experience of vomiting or by the access to the hospital.

It is important to talk about these disorders with the doctor because there are useful medications and measures to cope with them.

Nausea and vomiting are probably the symptoms that most upset patients who need to start treatments and chemotherapy is often considered by the patient the direct cause of nausea and vomiting.

Not all drugs cause these effects and not all do the same. **The ability of an anticancer drug to induce nausea and vomiting is defined emetogenic potential**, which is different from one drug to another, but also from one patient to another and depends on the chemotherapy dose administered.

There are 5 levels of ***emetogenic potential*** based on the frequency of symptoms:

Emetogenic potential	**5**	**4**	**3**	**2**	**1**
Emesis frequency	**>90%**	**60 – 90%**	**30 – 60%**	**10 – 30%**	**<10%**
Chemotherapy drugs	Carmustin (>250 mg/mq) Cisplatin (>50 mg/mq) Ciclofosfamid (>1500 mg/mq) Dacarbazine Mecloretamine Streptozocin	Carboplatin Citarabine (>1 g/mq) Doxorubicine (>60 mg/mq) Methotrexate (>1000 mg/mq) Procarbazine	Epirubicine Idarubicine Ifosfamide Mithoxantrone Doxorubicine Oxaliplatin Irinotecan Exametilmelamin	Docetaxel Etoposide 5Fluorouracil Gemcitabine Mitomycin Paclitaxel Pemetrexed Topotecan	Bleomycin Busulfan Clorambucil Idrossiurea Vinblastine Vincristine Vinorelbin Bevacizumab Cetuximab Gefitinib Erlotinib

Remember that this table is only indicative and the doctor may give you more detalied suggestions.

USEFUL ADVICES TO CONTRAST WITH NAUSEA AND VOMITING

- Try to avoid odors that bother you such as cooking smell, smoke or perfume. Try not to eat and not to remain long in the same room where foods are cooked
- Tend to drink out of meals and not during them
- Choose fresh drinks, fizzy and sweet
- Choose white meat
- Avoid big meals so your stomach won't feel to full. Eat frequent small meals throughout the day instead of one, two or three large meals (see tips on snacks)
- Chew your food well and slowly for easier digestion
- Eat foods at room temperature (avoiding foods and drinks too cold or too hot)
- Sucking on ice cubes can help you
- After eating rest in a chair avoiding to go to bed
- Morning time is the best moment for well-being: have a high nutritional content breakfast
- Breath deeply and slowly when you feel nauseated
- Wear comfortable shoes and clothes
- Use relaxation techniques: ask the doctor about initiatives nearby your home

IN CASE OF NAUSEA AND VOMITING TO BE AVOIDED:

- To go to bed 1 to 2 hours after the meal
- To force to eat food against his own will
- To eat red meat
- To eat heavy food difficult to digest (fried, spicy, fatty foods or too sweet)

Nausea and vomiting medications

If you need it, the doctor will prescribe an antiemetic therapy (ie, to control nausea and vomiting). There are several antiemetic drugs, such as metoclopramide, chlorpromazine, haloperidol or ondansetron, granisetron, dolasetron and palonosetron or aprepitant. Often the addition of cortisone helps the **antiemetic** effect of the drug.

5. Bone Metastases

The skeleton is the most common site of metastatic disease (namely cancer cells reach the bone through blood circulation) and bone metastases are one of the most common causes of pain for cancer patients. The presence of bone metastases may be responsible for major complications such as:

- immobilization: due to the presence of bone metastases in specific sites, the doctor will advise you to stay in bed for a long time
- pathological fractures: there may be fractures in different parts of the skeleton NOT as a result of trauma, but because bones are weakened by metastases
- hypercalcemia (increased amount of calcium in the blood): there is a raised level of calcium circulating in the blood in cases of bone metastases. For this reason the doctor may ask blood tests to assess its value. Hypercalcemia can cause some symptoms such as fatigue, irritability, nausea and vomiting, mental confusion. The biphosphonates (see page 21) can reduce the level of calcium due to the hypercalcemia
- spinal cord compression and/or nerve root compression: depending on the skeleton sites covered by metastases, bone marrow (inside the spine) or some of the nerve roots can be crushed. Some radiological examinations may help the doctor better understand where the metastasis is and which problems may create

In some cases, bone metastases may require surgery or radiotherapy (see page 23).

There are two different types of cells found in bone (osteoblasts and osteoclasts) working to maintain the compactness and the strength of this fabric.

Schematically:

- **the osteoclasts destroy the old bone**
- **the osteoblasts build new bone**

Lung cancer bone metastases are characterized by an increase of "osteoclastic" activity, namely an increase in the activity of osteoclasts. In the area covered by bone metastases a part of the bone structure is missing (because the osteoclast work more), making it more fragile. This process is called tumor osteolysis.

Radiography shows osteolytic bone metastases (eg lung cancer) as less dense and compact bone than the surrounding one.

THE BIPHOSPHONATES

The biphosphonates cover a very important role with chemotherapy, radiotherapy and/or other treatments (such as targeted therapies). Biphosphonates are drugs that restrict the action of the osteoclast (as in the osteolysis) restoring the interaction between osteoblast and osteoclasts activities, so that less calcium passes from the bone into the bloodstream and facilitating the bone recalcification where the metastasis is located.

The mostly used biphosphonates for lung cancer metastases are pamidronate and zoledronic acid. Both are given intravenously with schedules, dosages and timing that will be evaluated by the doctor. In general:

- the infusion can last from 30 minutes to more than 3 hours
- usually the administration is repeated every 3-4 weeks for a total dose of 6-8
- these drugs do not interfere with other therapies (such as chemotherapy or radiotherapy)
- the doctor will regularly check the level of calcium in your blood by blood tests

Possible side effects of biphosphonates

Every person reacts differently to drugs and thus also for the biphosphonates, reactions may vary from person to person. Generally these drugs are well tolerated, cause mild side effects and in a small percentage of patients.

If there are side effects, the most frequent are:

- Increased bone pain: in some cases the pain associated with bone metastases may temporarily increase after the biphosphonate administration. It is important to talk with the doctor to allow him to readjust the pain therapy up to this effect is not resolved.
- Flu-like symptoms: including fever, chills, muscle and joint pains

Even less common than the side effects listed above:

- A significant reduction of calcium circulation: it is a rare and temporary event. It is highlighted by regular blood tests as indicated by the doctor.
- Nausea and vomiting (see page 16).
- Abdominal pain, constipation or diarrhoea: they are temporary effects and they should be referred to the doctor.
- Alteration of renal function: it is a rare event, normally not associated with any symptoms and it is detected only by blood tests.
- Headache: is not a common event. It is important to maintain a good hydration (ie, introducing at least 1.5-2 litres of liquid per day). Consult the doctor on medications you can use.
- Mandibular problems (osteonecrosis): this is a very rare effect due to some biphosphonates: the jaw bone may lose its characteristics (structure, compactness). For this reason, the doctor may request information about the situation and possibly prescribe a dental x-rays (panoramic dental) before or during biphosphonate therapy.

ROLE OF RADIOTHERAPY IN CASES OF BONE METASTASES

Radiotherapy is one of the therapeutic options offered to patients suffering from metastatic lung cancer.

The decision to irradiate (ie to practice radiotherapy on one or more metastatic sites) a patient is taken jointly by the oncologist and the radiotherapist. Radiotherapy has an analgesic (ie pain control), decompressed (if there are areas crushed by metastastes - see above) and preventive role to secondary damages to the metastasis, including pathological fractures (see page 20).

The response to radiotherapy depends on the type of disease, on the site of it and on the patient.

The probability of the antalgic response to radiotherapy (ie a pain improvement) varies between 75 and 85%, obtaining in 30-50% of cases a complete response, ie the total painkiller drug defection and the recovery function (the activity of that skeleton part affected by metastasis).

The duration of response to radiotherapy is subjective and the absence of symptomatic relapse (ie, the pain does not occur again) is obtained in 50-70% of the cases.

The response to radiotherapy may appear 4 weeks after the end of treatment, sometimes is almost immediate and rarely occurs after more than 4 weeks after the end of therapy.

When the metastasis involves a vertebra (ie one part of the spine) or a long bone (such as leg or arm) the doctor may request an orthopedic consultation and it could be necessary a surgical intervention before starting radiotherapy.

Modalities of treatment (areas to irradiate, radiotherapy session number) are determined by the radiotherapist and you will be informed of them during the first consultation. One of the most common scheme used by radiotherapists is called "hypofractionation": it means that radiation dose (measured in Gray = Gy) during a radiotherapy session is a bit higher, but the session number is reduced. This determines a shorter duration of treatment and a more rapid action on the pain.

Some therapy options are: 30 Gy in 10 sessions (ie 10 days, corresponding to 2 weeks of treatment, as radiotherapy occurs every day from Monday to Friday) or 20 Gy in 5 sessions (ie 5 days, corresponding to 1 week of treatment) or 8 Gy in a single session.

Radiotherapy is usually well tolerated and rarely cause side effects: during the days immediately after the start of radiotherapy, the bone pain can increase in the area involved by radiotherapy, (because of the inflammation onset, edema, around the irradiated area) and your pain therapy may need to be rearranged with the doctor or radiotherapist.

6. Pain

Some people with lung cancer DO NOT develop ANY pain. The lungs do not hurt because they do not have pain receptors, namely cell structures giving the first pain impulse.

If pain occurs, it can usually be successfully controlled by you, your family or friends, and members of the medical and nursing team who are caring for you.

The causes of pain are now well understood and there are many effective ways of treating it. There is rarely any need for anyone to suffer uncontrolled pain. Pain is different for each of us. Even people with the same illness have very different experiences. The experience of pain is unique and should be treated according to the particular needs. It is important to describe to the doctor all the pain facets felt during a day so that it can be effectively treated.

The amount of pain you have is NOT related to how severe your cancer is. Having pain does not necessarily mean that the cancer is advanced, or more serious than if you have no pain.

Causes of pain

The pain associated with cancer is a chronic pain (ie persistent) in most cases and causes may be different:

- For direct action of the tumor infiltrating tissues and structures or causing infection (in 70% of cases): invasion of the skeletal system, invasion or compression of nerve structures, obstruction of hollow viscera, obstruction or vascular invasion. Syndromes caused by cancer (<10%): **paraneoplastic syndromes**, pain associated with debilitation caused by such **sores**.
- Pain following surgery, chemotherapy or radiotherapy (approximately 20% of cases): pain related to a diagnostic procedure (**eg biopsy**), acute post-operative pain, post-radiotherapy pain, pain after some types of chemotherapy.
- Causes not directly related to cancer or treatment (see cardiovascular, gastrointestinal, neurological or other). Less than 10% of cases.

Fear, anxiety, depression and tiredness can make your pain worse. This does not mean that the pain is “all in the mind” but coping with these emotions can help you to control the pain.

What is the pain?

Pain is an uncomfortable and unpleasant sensation and emotional experience that occurs when tissues in the body are damaged. It is a subjective symptom which may determine important changes of personality, lifestyle and personal skills. Pain is felt when particular nerves are stimulated in some way. The nerve sends a message to your brain and you feel a sensation.

Description of your pain

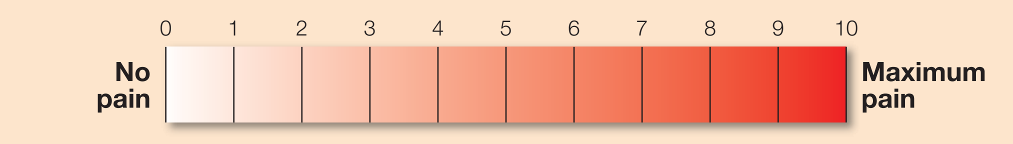
Describing your pain as fully as you can will help the doctor and nurses to work out the best way of treating it.

For describing your pain ask yourself some question and take a note of it on a diary. It can help you and your caregivers to cope with the pain and solve it.

- **Where is the pain?** Is it in one part of your body or in more than one place? Does it start in one place and gradually spread during the day?
- **What is the pain like?** You can use the words below to describe your pain. Use any that are appropriate.

- Aching
- Annoying
- Biting
- Blinding
- Blunt
- Burning
- Cold
- Constant
- Cutting
- Crawling
- Crushing
- Dragging
- Dull
- Electric-shock like
- Excruciating
- Gnawing
- Hot
- Hurting
- Intense
- Intermittent
- Mild
- Miserable
- Moderate
- Nagging
- Nauseating
- Niggling
- Numbness
- Overwhelming
- Penetrating
- Piercing
- Pins and needles
- Pricking
- Radiating
- Scratchy
- Searing (comes and goes)
- Sore
- Splitting
- Spreading
- Stabbing
- Stinging
- Tender
- Throbbing
- Tingling
- Tiring
- Unbearable

- **Have you had similar pain before?** Is it similar to any other pain you have had, like toothache or cramp?
- **Is the pain near the surface of your body or deep inside?**
- **How bad is it?** Try to rate your pain by comparing it with pain you have experienced before, such as a severe headache, toothache, back pain, childbirth pain or injury. You can measure it on a scale of 0 to 10, 0 means that you have no pain and 10 is the worst pain that you have ever had.



- **Does anything make the pain better or worse?** Do you feel better standing, sitting or lying down? Do you find relief putting something cold or warm on the sore area? Is it relieved by painkillers, such as paracetamol or aspirin? Do the painkillers stop the pain, or just reduce it? For how long? Can you distract yourself by reading, or with music, TV, etc?
- **Is the pain there all the time?** Does it come and go? Does it go if you sit still? Does it get worse if you move around? Is it worse at night? Does it keep you awake? Does it wake you?
- **How does the pain affect your daily life?** Does it stop you from bending or stretching for something? Does it stop you from sitting for very long – to eat a meal, for example? Does the pain stop you from concentrating to read, or affect your sleep? Does it stop you from walking for short or long distances?

The list of previous questions should suggest you that the answers will give you more information and will help you to find right solutions to you. If you believe it can be easier, **note your answers in a diary to be reviewed with the doctor** (oncologist or pain specialist).

Painkillers

There are many painkilling drugs available to treat different types and levels of pain. Painkilling drugs are known as analgesics.

Some people with cancer have chronic pain: this means that it is there for a long period of time and may be constant. It is recommended that people with chronic cancer pain should have regular painkillers. It is better to prevent the pain and keep it under control, rather than let it build up until it is severe.

How to take painkillers

- Painkilling drugs are usually taken by mouth, such as tablets, capsules, or as a drink. Many drugs are available as liquids for people who find tablets hard to swallow.
- If you cannot take oral medicines, other methods can be used, such as suppositories (which are inserted into the back passage) or skin patches.
- Painkillers can also be given by injection or by infusion, as a continuous dose given through a small tube into a vein or a fine needle placed just under the skin.

Storing painkillers

- If you are worried about forgetting to take them, write a note to yourself and put it somewhere you will see it rather than leaving the medicines out. Alternatively, you could create an alarm on your computer or mobile phone or watch. Boxes with different compartments containing the drug you have to take, can be useful.

Different levels in the pain control

Considering the pain extent we can set out different level of it. This gradual system recognizes:

- Mild pain: mild painkillers or anti-inflammatory drugs (eg. paracetamol or aspirin or ibuprofen, etc.)
- Mild to moderate pain: weak opioid painkillers (eg codeine, tramadol, oxycodone, codeine + paracetamol) in combination or not with drugs of previous level
- Moderate to severe pain: strong opioid painkillers (eg morphine, methadone, fentanyl, buprenorphine, hydromorphone) in combination or not with first level drugs

The idea behind the analgesic ladder is that if a person's pain is not controlled by the painkillers on one level, their doctor should prescribe a drug from the next level, rather than try a different painkiller from the same group. For example, if you are taking a mild painkiller such as paracetamol, but you are still getting pain, or your pain gets worse, the doctor should prescribe a moderate painkiller. If the pain is still not controlled or if it increases, the doctor can prescribe painkillers used to treat severe pain. Often, painkillers from two different groups will be used at the same time, as they work in different ways.

Other drugs that help to control pain, such as steroids (see page 32) and biphosphonates (see page 21) can also be used alongside painkillers.

Painkillers

We only list some of them to help you understand what drugs we are talking about: paracetamol, acetylsalicylic acid, the diclofenac, ibuprofen, the ketolorac, the metamizole, ketoprofen, the nimesulide, the piroxicam, etc...

Many of these drugs can irritate the stomach, so it is better to take them after eating and not with alcohol.

The dose of these drugs should always be checked with the doctor to avoid taking too much.

Moderate opioids

We only list some of them to help you understand what drugs we are talking about: codeine, tramadol, oxycodone, codeine + paracetamol, etc.

- The dose of these drugs should always be checked with the doctor to avoid taking too much
- All opioid painkillers of this group cause constipation: a dietary guideline (eg kiwi, cooked fruit, prunes, cereal, yogurt) can be helpful as a good hydration (at least 1.5 litres of liquid a day). The doctor may prescribe a laxative for you to take with these drugs.
- This type of painkillers may also cause drowsiness, which may be increased by alcohol so it is advisable to use caution in driving or better, to be accompanied by a friend or a family member.
- These drugs can make your mouth dry (dry mouth with little saliva): it may be useful to keep a candy or a chewing gum or an ice cube in your mouth and drink a lot during the day.

Strong opioids

We only list some of them to help you understand what drugs we are talking about: morphine, fentanyl, buprenorphine, hydromorphone, etc...

It is important to follow the doctor’s advices on the dose and the modality to take these drugs. It is usual to start at a low dose and build up gradually to get the best pain relief. The dose can be changed and other painkillers can also be used, so that the pain is kept under control, and this can take several days.

- Two people with the same disease may need different doses of a drug.
- These drugs may cause drowsiness. This usually passes within a few days once you are used to the dosage. For this reason it would be best not to drive after taking the medicine and ask the doctor how it (in the dose and the way you are taking) could interfere with your everyday life.
- All painkillers of this group cause constipation: a dietary guideline (eg kiwi, cooked fruit, prunes, cereal, yogurt) can be helpful as a good hydration (at least 1.5 litres of liquid a day). The doctor may prescribe a laxative for you to take with these drugs. In this case enteroclisms (ready enemas or glycerine or warm water) may help you.
- These drugs can make your mouth dry (dry mouth with little saliva): it may be useful to keep a candy or a chewing gum or an ice cube in your mouth and drink a lot during the day.

In some cases the pain specialist considers whether to adopt for you a system for infusing these drugs (alone or in combination with others) through a system of continuous supply of the drug, using charges to be replaced weekly.

Some more information on morphine

Morphine is one of the most commonly used strong painkiller.

You must not be frightened by “morphine” if properly used, it can control your pain and give you the opportunity to live more peacefully the day, tackle your commitments, to attend the friends and your family. If pain is under control, the anticancer therapy may be better addressed and tolerated.

There are different types of morphine, with slow or fast-acting, oral, intramuscular, intravenous or subcutaneous.

The dosage and timing of administration should be discussed with the doctor: ask him to record them. If morphine or other painkillers are taken as prescribed, you will not overdose; it is important not to increase it by your initiative.

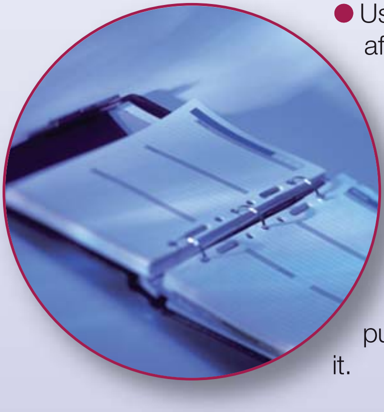
The formulations are usually taken every 4 hours, others every 12 hours. The doctor will show you the modality .

If you are unable to swallow (and thus you take morphine by mouth), it is important to talk to who may suggest you a different way of administration.

There is no limit to how long you can take morphine. It is quite safe to take it for as long as you need to.

Some more information on strong opioids in the form of patch.

- Remember that it is not necessary to position the patch exactly where you feel the pain: it is important to choose an area with no hair.
- The shoulder, for example, is a good place for applying it: ask a family member or a nurse to place the patch. Before the application, remember to remove the pellicle.



- Usually these patches should be removed and replaced after 72 hours: write the day and the time down on the agenda or set an alarm on your mobile phone or computer. The new patch can be replaced in the same area, just moving it sideways (or up or down) of a few centimetres.

Even with the patch it is possible to take a bath or a shower, just be careful not to rub the area and not to put the water jet right to the point where you have placed it.

REMEMBER

- **It is important to take the painkiller once the pain appears (do not wait it become stronger), and follow the timetable suggested from the doctor.** Many people tend to wait feeling a severe pain before taking the analgesic, but then it becomes more difficult to control it. There are many painkillers that can be used, so that it does not make sense to keep the pain. Painkillers do not become less effective if you take them for long periods, so it makes no sense to "preserve" them for the moment in which the pain will be worse. The same occurs with painkillers that must be administered at fixed times: if it is time to take it, do it even if at that moment you do not feel so bad. If you feel that this drug does not control the pain as it did previously, it is important to refer it to the doctor
- The fact that there has been prescribed morphine does not mean that the cancer is serious or more serious than before
- The painkillers may be prescribed with other medicines

Steroids

When pain is caused by the compression of a structure and/or a nerve, steroids may be helpful in controlling symptoms. It may be prescribed alone or in combination with other painkillers. The most used formulations are dexamethasone and prednisolone. Steroids may help to feel better and to increase the appetite. Steroids may slightly increase the body weight (including fluid retention).

The levels of blood sugar may go up: the doctor will ask periodic controls if you are taking steroids or to pay more attention to values in case of diabetes.

In some people steroids can cause irritability and agitation.

It can cause insomnia, but this is almost always solved by taking the therapy in the morning, during the breakfast.

Steroids may give stomach irritation and it is important to take them with a full stomach or the doctor may prescribe a drug to protect the stomach.

Other techniques for pain control

With painkillers you can use other techniques to improve the pain control. The doctor may help to evaluate the best and more appropriate technique to control the pain.

Among these are meditation, relaxation techniques, physiotherapy, **acupuncture**, emotional and spiritual support, yoga, visualization techniques. Even for these techniques it is important always refer to specialized and experienced personnel.

7. Glossary

Acupuncture: therapeutic technique aiming to promote health and well-being by inserting needles at particular points on the body, performed by specially trained personnel.

Anemia: is defined by the fall in the rate of hemoglobin (Hb) in blood.

Antiemetic: the term emetic medicine means two different things:

- any procedure able to decrease the discomfort of nausea and vomiting or unable to prevent it;

- a specific type of drug

Biopsy: medical examination that takes a portion or a tissue fragment from an organism which is analyzed under a microscope or even with microbiology techniques or molecular biology in order to exclude or confirm a suspected disease and arrive at a diagnosis on the basis of clinical, radiological or instrumental observations and thus to define precisely the characteristics (severity, extent, possible therapies).

Thrombotic event: we talk about a venous or arterial thrombotic event, when the blood (even in small amounts) clots within a blood vessel, adheres to its walls blocking it partially or completely, preventing the blood flow. The clot is called thrombus.

Sores: lesions arising mainly due to the prolonged immobility of a subject and that reduce the amount of blood and its nutrients in areas under pressure.

Paraneoplastic syndromes: symptoms related to the impairment of various organs, apparatuses or functions, for a tumor action at a distance. Most malignant tumors may give rise to a paraneoplastic syndromes, but the frequency of the event varies with the location and the tumor histological type.

WALCE Onlus (Women Against Lung Cancer in Europe)
is a non-profit organization created to make women aware
of the significant increase of lung cancer in women.
WALCE aims to spread knowledge of this disease in terms of prevention,
diagnosis and therapy.
WALCE was founded in 2006 as an Italian-Spanish initiative.
It aims to be the first association to function on a European scale
in the fight against lung cancer.
This is the disease which is difficult and complicated to treat and in which women
play a leading role on a daily basis, whether they are doctors, nurses, patients,
family members or caregivers.
Women are often a point of reference and a source of support and hope.

WALCE
Women Against Lung Cancer in Europe

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This booklet was supported by an educational grant from:

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