



Junta de Andalucía

Consejería de Salud y Consumo



RADIOTHERAPY: GUIDE FOR PATIENTS AND FAMILY

Radiotherapy Oncology Unit



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INTRODUCTION

This guide is oriented to help you and your family know better what radiotherapy is, its indications and side effects.

The advice and recommendations that we indicate are aimed at knowing more about the treatment that is going to be carried out. We will also inform you about the most frequent possible side effects and the measures you should take to reduce its intensity.

After reading this guide consult any doubt with your doctor or nurse



What is radiation therapy and how does it work?

Radiation therapy uses high-energy particles, waves or protons, to destroy or damage cancer cells.

Radiation therapy is one of the most common treatments for cancer. Many other cancers are also treated with radiation therapy.

Radiation can be given alone or used with other treatments, such as surgery or chemotherapy.

There are also different ways to give radiation.

Sometimes a patient gets more than one type of radiation treatment for the same cancer.

Radiation therapy uses special equipment to send high doses of radiation to the cancer cells.

Most cells in the body grow and divide to form new cells. But cancer cells grow and divide faster than many of the normal cells around them.

Radiation works by making small breaks in the DNA inside cells. These breaks keep cancer cells from growing and dividing, and often cause them to die. Nearby normal cells can also be affected by radiation, but most recover and go back to working the way they should.

Unlike chemotherapy, which exposes the whole body to cancer-fighting drugs, radiation therapy is usually a local treatment. It's aimed at and affects only the part of the body being treated. The goal of radiation treatment is to damage cancer cells, with as little harm as possible to nearby healthy tissue.

Do the benefits of radiation therapy outweigh the risks and side effects?

Radiation therapy may be more helpful in some cases than in others. For example, some types of cancer are more sensitive to radiation than others. And some cancers are in areas that are easier to treat with radiation without causing major side effects.

There are lifetime dose limits of radiation. Doctors know the amount of radiation that normal parts of the body can safely get without causing damage that can't be reversed. They use this information to help decide how much radiation to give and where to aim radiation during treatment.

If your doctor or cancer team recommends radiation treatment, it's because they believe that the benefits you'll get from it will outweigh the possible side effects. Still, this is something you must be comfortable

Knowing as much as you can about the possible benefits and risks can help you be sure that radiation therapy is best for you.

How is radiation therapy given?

Radiation therapy can be given in 2 ways:

- External radiation
- Internal radiation

In some cases more than one type is used.

Deciding which type of radiation to use depends on the kind of cancer you have and where it is in your body.

External radiation therapy

External radiation uses a machine that directs high-energy rays from outside the body into the tumor and some normal nearby tissue. Most people get external radiation therapy over many

weeks. It's done during outpatient visits to a hospital or treatment center.

How does your doctor plan your treatment?

After a physical exam and a review of your medical history and test results, the doctor will pinpoint the area to be treated. This is done a few days before starting radiation therapy in a process called simulation. You will be asked to lie still on a table while the radiation therapist uses a special x-ray machine (a CT scan) to define your treatment field. These are the exact places on your body where the radiation beams will be aimed.

Radiation beams are aimed very precisely. A special mold, mask, or cast of a body part may be made to help you stay still during treatment. The radiation therapist may mark the treatment field with freckle-sized dots of semi-permanent ink. The marks will likely fade away over time, but they are needed until your treatment is finished. Don't use soap on or scrub these marks. Sometimes the area may be marked with permanent dots like a tattoo.



How long does the treatment take?

The total dose of external radiation therapy is usually divided into smaller doses called fractions.

The most common way to give it is daily, 5 days a week (Monday through Friday) for 5 to 8 weeks. Weekend rest breaks allow time for normal cells to recover. The total dose of radiation and the number of treatments can vary.



What happens during each treatment visit?

External radiation is a lot like having a regular x-ray. The treatment itself is painless and takes only a few minutes. But each session can last 15 to 30 minutes because of the time it takes to set up the equipment and put you in position.

Depending on the area being treated, you may need to undress, so wear clothes that are easy to take off and put on. You'll be asked to lie on a treatment table next to the radiation machine.

The machine has a wide arm that extends over the table. The machine can move around the table to change the angle of the radiation, if needed.

Once you are in the correct position, the radiation therapist will go into a nearby room to operate the machine and watch you on a TV screen. The room is shielded, or protected from the radiation so that the therapist is not exposed to it. You will be able to talk with the therapist over an intercom. You'll be asked to lie still during the treatment. You do not have to hold your breath – just breathe normally.

The radiation therapy machine will make clicking and whirring noises and may sometimes sound like a vacuum cleaner as it moves to aim the radiation beam from different angles. The radiation therapist controls the movement and checks to be sure it's working properly.

Internal radiation therapy (brachytherapy)

Internal radiation is also called brachytherapy.

It uses a radioactive source, called an implant, that's put inside the body in or near the tumor. The radiation from the implant travels

only a short distance, so it has very little effect on normal body tissues.

Internal radiation therapy uses a radiation source that's usually sealed in a small holder (called an implant). The implant is placed very close to or inside the tumor. It's placed so that it harms as few normal cells as possible. Internal radiation therapy lets the doctor give a higher dose of radiation to a smaller area than might be possible with external radiation treatment.

The main types of brachytherapy are intracavitary radiation and interstitial radiation. Both of these methods use radioactive implants such as pellets, seeds, ribbons, wires, capsules, balloons, or tubes.



Preventing and managing side effects of radiation therapy

When the radiation damages nearby healthy tissue, it can cause side effects. Many people worry about this part of their cancer treatment. Before treatment, talk with your doctor or nurse about what you might expect.

Taking care of yourself during treatment

You need to take special care of yourself to protect your health during radiation treatment. Your doctor or nurse will give you advice based on your treatment plan and the side effects you might have.

Here are some general tips:

Be sure to get plenty of rest. You may feel more tired than normal. Try to get good, restful sleep at night. Severe tiredness, called fatigue, may last for several weeks after your treatment ends. Eat a balanced, healthy diet. Depending on the area of your body getting radiation, your doctor or nurse may suggest changes in your diet.

Tell your doctor about all medicines you are taking. Give your doctor a full list of everything you take and how often you take it, even things like aspirin, vitamins, or herbs.

Take care of the skin in the treatment area.

If you get external radiation therapy, the skin in the treatment area may become more sensitive or look and feel sunburned. Ask your nurse before using any soaps, lotions, deodorants, medicines, perfumes, cosmetics, powder, or anything else on the treated area. Some of these products may irritate sensitive skin.

Common side effects of radiation therapy

Fatigue

Fatigue is feeling tired physically, mentally, and emotionally. It's very common with cancer and its treatment, and often happens with radiation therapy. Managing fatigue is an important part of care. Fatigue means having less energy to do the things you normally do or want to do. It can last a long time and can get in the way of your usual activities. It's different from the fatigue of everyday life, and it may not get better with rest.



Most people begin to feel tired after a few weeks of radiation therapy.

Fatigue usually gets worse as treatment goes on. Stress due to your illness and daily trips for treatment may make fatigue worse. Fatigue will usually go away over time after treatment ends. Until

then, here are some things that you can do to help you deal with it:

Make a list of the things you need to do in order of how important they are to you.

Try to do the important ones first, when you have the most energy. Ask for help from loved ones and friends.

Walk at least half an hour a day.

Unless you are given other instructions, eat a healthy diet that includes protein (meat, milk, eggs, and beans), and drink plenty of water each day.

Place things that you use often within easy reach.

Try to reduce stress. Things like deep breathing, visual imagery, meditation, prayer,

talking with others, reading, listening to music, painting, or any

other activity that gives you pleasure may help you feel less stressed out. Keep a journal of how you feel each day. Take it with you when you see your doctor. Balance rest and activities. Try not to spend too much time in bed, which can make you feel weak. Schedule activities so that you have time for plenty of rest. Most people find that a few short rest periods are better than one long one. Talk to your nurse about whether you should exercise, and what types of physical activities may be best for you.

Unless you are given other instructions, eat a healthy diet that includes protein (meat, milk, eggs, and beans), and drink plenty of water each day.

Skin problems

Your skin in the treatment area may look red, irritated, swollen, blistered, sunburned, or tanned.

After a few weeks, your skin may become dry, flaky, itchy, or it may peel. It's important to let your doctor or nurse know about any skin changes. They can suggest ways to ease the discomfort, maybe lessen further irritation, and try to prevent infection.



Most skin reactions slowly go away after treatment ends. In some cases, though, the treated skin will stay darker and might be more sensitive than it was before. You need to be gentle with your skin. Here are some ways to do this:

Do not wear tight, rough-textured, or stiff clothes over the treatment area.

Do not rub, scrub, scratch, or use adhesive tape on treated skin.

Do not put heat or cold (such as a heating pad, heat lamp, or ice pack) on the treatment area. Protect the treated area from the sun. Use only lukewarm water and mild soap. Ask your nurse before using anything on the skin in the treatment area.

Eating problems

Radiation to the head and neck or parts of the digestive system (like the stomach or intestines) might cause eating and digestion problems.

You may lose interest in food during treatment. But even if you're not hungry, try to eat protein and some high-calorie foods.

Doctors have found that patients who eat well can better handle their cancer treatments and side effects. The list below suggests things you can do when you don't feel like eating, and how to make the most of it when you do feel like eating.

Eat when you're hungry, even if it's not mealtime. Eat 5 or 6 small meals during the day rather than 2 or 3 large ones. Vary your diet, and try new recipes.

If you enjoy company while eating, try to eat with family or friends, or turn on the radio or television.

Keep healthy snacks close by for nibbling when you get the urge. If other people offer to cook for you, let them. Don't be shy about telling them what you would like to eat.

If you live alone, you might want to arrange for a program like Meals on Wheels to bring food to you. Ask your doctor, nurse.

Radiation therapy to the head and neck

Some people who get radiation to the head and neck have redness and soreness in the mouth, dry mouth, mouth sores, trouble swallowing, changes in taste, or nausea.

Other possible side effects include a loss of taste, earaches, tooth decay, and swelling.

You may lose your hair, your skin texture might change, and your jaw may feel stiff. If you get radiation therapy to the head or neck, you need to take good care of your teeth, gums, mouth, and throat.

Here are a few tips that may help you manage mouth problems:

Avoid strong spices and coarse foods, such as raw vegetables, dry crackers, and nuts.

Do not eat or drink very hot or very cold foods or beverages. Do not smoke, chew tobacco, or drink alcohol – these can make mouth sores worse.

Stay away from sugary snacks. Ask your doctor or nurse to recommend a good mouthwash. The alcohol in some mouthwashes can dry and irritate mouth tissues.

Rinse your mouth with warm salt and soda water every 1 to 2 hours as needed. (Use 1 teaspoon of salt and 1 teaspoon of baking soda in 1 quart of water.)

Sip cool drinks often throughout the day. Eat sugar-free candy or chew gum to help keep your mouth moist.

Moisten food with gravies and sauces to make it easier to eat.

Ask your doctor or nurse about medicines to help treat mouth sores and control pain while eating.

Dental care

Radiation treatment to your head and neck can increase your chances of getting cavities. Mouth care to prevent problems will be an important part of your treatment.

Clean your teeth and gums with a very soft brush after meals and at least one other time each day.

Use fluoride toothpaste that contains no abrasives.

If you normally floss, keep flossing at least once a day. Tell your doctor if this causes bleeding or other problems. If you do not usually floss, talk with your doctor before you start.

Rinse your mouth well with cool water or a baking soda solution after you brush. (Use 1 teaspoon of baking soda in 1 quart of water.)



Radiation therapy to the breast

Radiation treatment to the breast area could affect the heart, also cause swallowing problems, cough.

Be sure you understand what to look for and tell your doctor or nurse if you notice any of these side effects.

If you get radiation therapy after surgery for breast cancer, try to go without wearing a bra whenever you can. If this is not possible, wear a soft cotton bra without underwires so that your skin is not irritated.

If your shoulders feel stiff, ask your doctor or nurse about exercises to keep your arms moving freely.

Other side effects can include breast soreness, skin irritation and color changes, and swelling from fluid build-up in the treated area. These side effects most likely will go away a month or 2 after you finish radiation therapy. If fluid build-up (lymphedema) continues to be a problem, ask your doctor what steps you can take.

Radiation therapy to the chest

Radiation treatment to the chest may affect the lungs and swallowing problems, cough, or shortness of breath.

Be sure you understand what to look for and tell your doctor or nurse if you notice any of these side effects.

Radiation therapy to the stomach and abdomen

If you are getting radiation to your stomach or some part of the abdomen, you may have vomiting, nausea, belly cramps, or diarrhea.

Managing nausea

Some people say they feel quite uneasy for a few hours right after radiation therapy. If you have this problem, try not eating for a couple of hours before and after your treatment. You may handle the treatment better on an empty stomach.

If the problem persists, ask your doctor about medicines to prevent and treat nausea. If you notice nausea before your treatment, try eating a bland snack, like toast or crackers, and try to relax as much as possible.

Here are some tips to help an upset stomach:

Eat small meals.

Eat often and try to eat and drink slowly.

Avoid foods that are fried, spicy, sweet, or high in fat.

Drink cool liquids between meals.

Eat foods that don't have strong smells and can be served cool or at room temperature.

For a severe upset stomach, try a clear liquid diet (broth and juices) or bland foods that are easy to digest, such as dry toast and gelatin.

Learn deep-breathing and relaxation techniques, and try them when you feel nauseated.

How to handle diarrhea

Diarrhea most often begins a few weeks after starting radiation therapy. Diet changes may also be recommended, such as: Try a clear liquid diet (water, weak tea, apple juice, peach nectar, clear broth, popsicles, and plain gelatin) as soon as diarrhea starts or when you feel like it's going to start.

Don't eat foods that are high in fiber or can cause gas or cramps, such as raw fruits and vegetables, beans, cabbage, whole-grain breads and cereals, sweets, and spicy foods.

Eat frequent, small meals. Do not drink milk or eat milk products if they irritate your bowels.

When the diarrhea starts to improve, try eating small amounts of low-fiber foods, such as rice, bananas, apple sauce, yogurt, mashed potatoes, low-fat cottage cheese, and dry toast.

Be sure you take in enough potassium (it can be found in bananas, potatoes, beans, peaches, and many other foods). This is an important mineral you may lose through diarrhea.

Diet planning is an important part of radiation treatment of the stomach and abdomen. Keep in mind these problems should get

better when treatment is over. In the meantime, try to pack the highest possible food value into even small meals so you get enough protein, calories, vitamins, and minerals.

Radiation therapy to the pelvis If you get radiation therapy to any part of the pelvis, you might have one or more of the digestive problems already described and some irritation of your bladder.

Bladder problems

Pelvic radiation can affect the bladder, which can cause problems like pain, burning, trouble passing urine, blood in the urine, and an urge to urinate often.

Most bladder problems get better over time, but if the radiation damages the lining of the bladder it can cause radiation cystitis.

Radiation treatments for certain cancers, such as prostate and bladder, may lead to urinary incontinence, which means you are not able to control your urine or have leakage or dribbling. There are different types and degrees of incontinence, but it can be treated.

Nursing and medical follow up care

What does “follow up” mean? No matter what type of cancer you’ve had, you will need regular doctor visits to check your progress radiation treatment. You may need help dealing with any problems that may come up, too. This phase of your treatment is called follow-up care. Your follow-up care will include checking the results of your treatment, but it may also include more cancer treatment, rehabilitation, and counseling. It may include visits with your primary care doctor, surgeon, nursing team in case of having side effect problem and your radiation oncologist.



OTHER PRACTICAL TIPS

Do not take any type of medicine without consulting your doctor.

You are not radioactive at any time during your treatment, so you are not a danger to anyone. This problem only affects patients undergoing internal radiotherapy and that is why they remain hospitalized during their treatment.

There are associations that can offer help in a disinterested way:

www.mskcc.org/cancer-care/patient-education/exercises-after-breast-surgery
<https://www.mskcc.org/>

FMAEC (Fundación Malagueña de Asistencia a Enfermos de Cáncer). Av. Plutarco 73, bloque 5, 2ºB. 29010, Málaga. Tfn: 952 12 17 17. e-mail: info@fmaec.org

ASAMMA (Asociación para la Atención a Mujeres operadas de Cáncer de Mama).C/ Tizo, 11.(Barrio del Molinillo). Tfn: 952 25 69 51. E-mail: información@asamma.org

ASMALAVOZ (Asociación de Laringectomizados y Mutilados de la Voz). Alameda de Capuchinos, 37. 29014, Málaga. Tfn: 952 25 61 95

AECC (Asociación Española contra el Cáncer). Alameda de Capuchinos, 39. 29014, Málaga. Tfn: 95225 61 95 / 952 25 64 32. malaga@aecc.es



With this guide we intend to offer some information that helps you understand your treatment.

Feel free to ask any doubt that you might have or any problem that could appear during this period.

Telephones

Secretary office 95103617/951030646

(Morning Schedule)

Nursing office 951032685 (From 8.30 to 21.00)

Ambulance Service 952362233/952250565