# Radiotherapy information and support

MARCELLE RUTH
CANCER CENTRE & SPECIALIST HOSPITAL

**The Marcelle Ruth Cancer Centre & Specialist Hospital is the first comprehensive healthcare centre of its kind in Nigeria and indeed West Africa.**

## > Our promise

In everything we do, we believe that compassion and care make all the difference.

With vast experience and understanding, our specialist team uses the very latest technology and treatments to deliver the best outcomes possible.

From screening and diagnosis to treatment and ongoing support, we are committed to providing outstanding care to those in need.

# About this booklet

We understand it can be overwhelming for anyone to undergo cancer care, but we are here to provide you with help and support.

The focus of this leaflet is to help you and your family understand more about your radiotherapy treatment.

# Frequently asked questions and answers about radiotherapy

### What is radiation therapy?

In order to destroy cancer cells and shrink tumours, radiation therapy is performed. Radiation therapy refers to the use of high-energy ionizing radiation to treat cancer and other malignant tumours. It is also referred to as radiotherapy. You must be familiar with X-rays and CT scans: the same type of radiation is employed in radiotherapy.

### Who gets radiation therapy?

Most individuals with cancerous cells and some with benign tumours need treatment using radiation.

### How is radiation therapy administered?

It can be administered through External Beam Radiation Therapy (EBRT) or brachytherapy machines. The external beam refers to when a radiotherapy machine directs radiation from outside the patient's body to destroy the cancer cells.

Brachytherapy involves placing the source of radiation in or near the tumour inside the patient's body. Patients sometimes get both forms of radiation therapy.

### How does radiation therapy work?

In order to form new cells, most cells in the body grow and divide, but cancer cells grow and divide faster than all of the normal cells around them, leading to an unusual accumulation of cells. Radiation causes damage to cancerous cells by generating small breaks in their DNA. Such breaks prevent cancer cells from growing and dividing, leading to cell death. Radiation can also impact surrounding normal cells, but most recover and go back to functioning the way they should.

### How long does radiation therapy take to work?

Radiation therapy starts destroying cancer cells instantly in the sub-molecular level but the overall noticeable effect depends on the type of cancer, staging and the patient. On average a curative regimen takes between four weeks to seven weeks while it could be as short as a day to complete a palliative course of treatment.

### What does radiation therapy do to healthy cells?

Not only does radiation kill or delay the growth of cancer cells, it may also affect healthy cells that are nearby. After therapy is over, the healthy cells most often recuperate. To achieve this faster and better, computerised plans are done to reduce to a minimum the amount of radiation that gets to healthy cells, proper and accurate shielding is ensured and the overall treatment time is spread out.

### Does radiation therapy hurt?

No, radiation therapy does not hurt while it is being given. It is completely painless.

### Is radiation therapy used with other types of cancer treatment?

Yes, it is possible to undergo radiation therapy before, during or after other treatments for cancer, such as surgery and chemotherapy or a combination of the three.

### Will I be radioactive?

No. Through this procedure, the body does not store or emit any radiation.

### Can I be around children and pregnant women?

Yes, you do not become radioactive through this form of radiotherapy and you pose no risk of radiation exposure to people around you. So being with children, pregnant women and other people during your care is completely healthy and recommended for you.

### Can I be given radiation therapy if I have a pacemaker?

This does not stop your treatment with radiation therapy, but it is a crucial piece of knowledge that you must provide to your oncologist.

### Should I follow a special diet while I am getting radiation therapy?

During radiation therapy, the body requires a lot of energy to recover. Therefore, it is vital that you eat a balanced diet to ensure your blood count is optimal and your body weight is maintained throughout the duration of the treatment.

### Can I continue to work during radiation therapy?

During radiation therapy, most people are able to function full time. Others will only be able to work part time or not at all. The degree to which you should function depends on how you feel.

### Could I lose my hair?

Some people do lose their hair, but only in the area that is being treated.

### Can I go swimming during radiotherapy sessions?

No. During radiotherapy, under no circumstances should water touch the treatment area to avoid some skin reactions. Some points on your body will also be marked, and water could wash it off.

### Can I drive to my radiotherapy treatment?

Yes. If you feel up to it, you should drive. If you should not, the doctor will inform you accordingly.

### How can I cope with my feelings during radiation therapy?

It can be very difficult to live with cancer and to go through treatment. During radiation therapy, it is common to feel nervous, depressed, scared, angry, upset, powerless or alone at some stage. But there are ways to deal with these feelings that you can explore. Many individuals find it useful to talk about it. If you feel like speaking to someone, our counselling unit would be happy to help you. You may also try relaxation, meditation, exercising and praying.

### What happens when radiation therapy is over?

Once you have finished radiation therapy, you should consult with your oncologist. You will need follow-up care and this usually happen six months post-treatment and subsequently.

## Can I get pregnant when undergoing radiation therapy?

No. It is important for women not to get pregnant when undergoing radiation, as it can affect the developing baby. Be sure to speak to your oncologist about birth control choices if there is a risk you could become pregnant. Let your oncologist know immediately if you are or may be pregnant. There is no evidence of the effect of radiation on children fathered by men undergoing radiation therapy, but doctors often advise men to avoid getting a woman pregnant during and for some weeks after treatment because of the unknown risk.

## Who gives radiation treatments?

Each patient is unique and the therapy given is different and individually planned. You will have a team of multi-disciplinary medical professionals caring for you through your radiation therapy. Your radiation therapy team include:

### Radiation oncologist

This is a specialist doctor that is specially trained to treat cancer with radiation. This person prescribes and authorises your radiation treatment plan.

### Medical physicist

This is a person who is specially trained to apply the concepts of physics for use in medical radiation treatments and equipment. They ensure that accuracy and precision is maintained in the delivery of your treatment.

### Radiation therapist or radiation therapy technologist

This is a professional that is specially trained in the delivery of radiotherapy and patient care during treatment. The person operates the radiation equipment and positions you for each treatment.

### Radiation therapy nurse

This nurse has special training in cancer treatment and can give you information about radiation treatment and managing side effects.

# Radiotherapy reactions or side effects

There are few noticeable radiotherapy reactions with patients. Side effects are peculiar to the part of the body that is been exposed or treated.

### Skin changes

You may experience dryness, itching, blistering or peeling. When noticed, report these to the doctor, nurse or another member of the health care team. Protect affected skin from sun.

### Fatigue

Tiredness or feeling exhausted all the time may occur. Your level depends on your treatment plan.

## Different body areas with different side effects of radiotherapy

### Brain

Possible side effects experienced are:

- fatigue
- hair loss
- nausea and vomiting
- skin change
- headache
- blurred vision.

### Head and neck

Possible side effects experienced are:

- dry mouth
- soreness of mouth and gums
- difficulty in swallowing
- stiffness in the jaws
- nausea (feel like vomiting)
- hair loss
- lymphedema (type of swelling)
- less active thyroid gland
- tooth decay.

### Chest

Possible side effects experienced are:

- difficulty in swallowing
- shortness of breathe
- soreness of breast and nipples
- stiffness of shoulder
- pneumonitis (cough, fever, fullness of chest) – this may occur after radiation therapy between 2 weeks and 6 months
- radiation fibrosis (scar on lung from untreated pneumonitis).

### Stomach and abdomen

Possible side effects experienced are:

- loss of appetite
- nausea and vomiting
- bowel cramping
- loose stool or diarrhoea.

After the course of treatment, the symptoms may go away. Change in diet and prescribed drugs may help reduce symptoms (see oncology dietitian).

### Pelvis

Possible side effects experienced are:

- loose stool or diarrhoea
- rectal bleeding
- incontinence (not being able to control the bladder)
- sexual problems (erectile dysfunction/inability to maintain erection)
- lowered sperm counts and reduced sperm activity. This happens due to radiation exposure to the testis or prostate gland. It can affect the ability to have children.
- menstruation changes (menstruation stopping)
- radiation therapy in menopause could cause symptoms like vaginal itching, burning, dryness and other sexual changes for women
- radiation therapy exposure to ovaries may cause infertility.

## More on radiation therapy reactions or side effects

Most of these side effects vanish between 2–6 months after you have finished radiation therapy treatment. Most women that have radiation therapy treatment for breast cancer or during treatment may have side effects and these may go away or remain. Some may develop months or years after treatment.

Two common terms for side effects are:

- long-term effects
- late effects.

Long-term effects begin during or shortly after treatment. They could last more than 6 months after the end of treatment. They may go away without any treatment, with symptoms getting better 1–2 years after treatment.

## To manage radiation therapy side effects

- Ensure adequate and enough sleep during treatment.
- Treat skin reactions following the advice of your doctor or health care providers.
- Maintain a well-balanced diet.
- Indulge in mild physical activity.
- Get the support you need.

## Radiotherapy and food

- Eat lots of different food rich in protein and low in fats. Eat beans, low carbohydrates (starchy food), soy products, unsalted nuts, seeds like walnuts, pumpkin seeds etc., yoghurt, egg (white part when boiled).
- Avoid much oily food, meat, fried food stuffs.
- Drink plenty of water, avoid too many carbonated drinks, processed food, too much spicy food (pepper).

Radiation therapy could change how a patient's body adapts to certain food and makes use of nutrients. A healthy diet is a route to swift recovery during treatment. Each patient reacts differently to treatment; however, here is a guideline for a good diet while undergoing radiation therapy for cancer.

### Pay attention

Observe any changes that may occur e.g. side effects and how they affect your appetite.

### Plan ahead

Prepare for changes to your food or diet.

### Focus

Pay attention to nutrient-packed food such as fruits, vegetables, peas, grains, proteins, low in fats, avoid too much saturated fat, sugar, salt, alcohol and too much fried food and meat and smoking in stressful moments.

### Change your eating pattern (habit)

Eat smaller meals more frequently rather than have a heavy meal.

### Stay hydrated

Drink lots of water or fluids that the body will accept.

- Avoid tomato-based food etc. for head and neck radiation treatment.

# Frequently asked questions about external Beam Radiation Therapy (EBRT)

### What is External Beam Radiation Therapy?

For most cancers, radiation therapy is delivered by large machines called linear accelerators (LINACs). External Beam Radiation Therapy comes from this unit that targets radiation at the cancer. It does not touch you, but it can move around you from several directions while sending radiation to the body. EBRT is a local treatment, which means that the radiation is directed to a particular body part. If you have breast cancer, for instance, you have radiation only to your chest, not to the rest of your body.

### How often will I have External Beam Radiation Therapy?

This therapy is usually offered as a series of outpatient appointments referred to as fractions, usually over five days a week (Monday through Friday). Depending on the type of cancer that you have and the goal of your treatment, treatment lasts anywhere from two to ten weeks. This period of time is called a course of treatment. Radiation therapy may also be given on other schedules such as:

#### Accelerated fractionation

Treatment with higher daily or weekly doses to minimise the number of weeks of treatment.

#### Hyperfractionation

Where smaller radiation doses are given more than once a day.

#### Hypofractionation

Higher doses once a day (or less frequently) to minimise the number of treatments.

## What happens before External Beam Radiation Therapy?

Radiotherapy requires accuracy and precision and thereby demands the patient's precise positioning in order to accurately target the radiation beam to the treatment area. You will be given an appointment for a simulation that takes place in a CT simulator to ensure that your treatment is carefully planned. This is a CT scanner which acquires images and enables the images to be sent to the planning system for radiotherapy treatment. An exact and reproducible position for you to follow during your therapy is also worked out here. It is important that you are relaxed because you will continue to maintain this position for the required period of time during your radiation therapy sessions.

To mark the treatment area, the radiation therapist will place tiny markings (either tattoos or dots of coloured ink) on your skin. Throughout your radiation therapy course, these marks are required. Every day, the radiation therapist will use them to ensure that you are in the right place. If you get radiation to the region of the head and neck, you might be fitted with a mask. The mask comes with air holes.

## Is there any special clothing I will need to wear during External Beam Radiation Therapy?

No, but you should wear comfortable clothes (soft fabric) that do not fit tightly, especially around your treatment area, as you will need to remove clothes that cover the treatment area. Also, in the treatment area, do not wear jewellery, adhesive bandages or powder.

## What happens during External Beam Radiation Therapy?

You will be asked to remove the fabric that covers the procedure, or you may be asked to change into a robe or hospital gown.

You will go to the radiation treatment room and repeat the same position as that recorded during the CT simulation. Your skin marks or face mask can be used by the radiation therapist to help you get into the correct position. You could see coloured lights pointing at the markings on your skin. These lights are safe and assist the therapist to position you each day for treatment. You will need to remain still so that each time, the radiation goes to the exact same location. You are able to breathe normally during this time and do not have to hold your breath.

Just before the treatment commences, the radiation therapist will leave the room and go to a nearby room to operate the radiation machine. The therapist monitors you on a TV screen and talks to you in the treatment room through a speaker.

# Frequently asked questions about Brachytherapy

### What is brachytherapy?

Brachytherapy is a type of treatment in which a source of radiation is inserted within the body, typically enclosed in a tiny holder called an implant. The implant is positioned very close to or within the tumour so that as few normal cells as possible are damaged. Brachytherapy enables a higher dose of radiation to be provided in a smaller area than is achievable with external radiation therapy. Intracavitary radiation and interstitial radiation are the primary forms of brachytherapy. Radioactive implants including pellets, seeds, ribbons, cables, needles, capsules, balloons or tubes are used in each of these processes. The radioactive source is positioned in a cavity (space) in the body, such as the rectum or uterus, during intracavitary radiation. The implants are positioned in or near the tumour with interstitial radiation, but not in the body cavity.

### How is brachytherapy performed?

Brachytherapy is performed through a catheter, which is a thin, stretchy tube. Brachytherapy is often set in place through a larger device called an applicator. The radiation source will be put internally once the catheter or applicator is in position. Depending on the type of brachytherapy you have, the type of cancer, where the cancer is in your body, your health and any cancer treatments you've received, how long the radiation source stays in place will vary.

## What are the types of brachytherapy?

There are three types of brachytherapy:

### Low-dose rate (LDR) implants

The radiation source remains in place for one to seven days in this type of brachytherapy. During this time, you will be in the hospital.

### High-dose rate (HDR) implants

The radiation source is left in place for just 10 to 20 minutes at a time in this method of brachytherapy, and then removed. You can have treatment for two to five days twice a day, or for two to five weeks once a week. Depending on the cancer type, the plan varies. Your catheter or applicator may remain in place throughout the course of treatment, or it may be put in place before each treatment. During this time, you may be in the hospital or you may make regular visits to the hospital to get the source of radiation put in place.

### Permanent implants

Here, the catheter is removed after the radiation source is put in place. The implants still remain in your body, however each day the radiation gets weaker. Almost all the radiation will go down as time goes by. You may need to restrict the time with other individuals when the implants are in place, and you might be discouraged from spending time around children or pregnant women.

## What happens while the radiation is in place?

Your body fluids (urine, sweat, and saliva) won't give off radiation with brachytherapy; however, the radiation source does. So, for a short time, your body can give off a small amount of radiation. You will be asked to stay in the hospital if the radiation is stored in a temporary implant and you will have to restrict visitors during therapy. You might also be expected to keep a certain distance from them. You may not be permitted to be visited by pregnant women and children. Your body will no longer give off radiation once the implant is removed.

### Will I feel pain during brachytherapy?

When the implant is in place, you are not likely to experience a lot of pain or feel ill. You may feel drowsy or tired because of the medications used when they're being placed, but these side effects do not last long. If an applicator is keeping your implant in place, you may have some discomfort in that area. Before the catheter or applicator is removed, you will get medication for pain.

### What happens when the catheter is taken out after treatment with LDR or HDR implants?

For a couple of months, the place where the catheter or applicator was could be tender. After the catheter or applicator is removed, no radiation is left in the body. It is healthy for people, including small children and pregnant women, to be near you. You might need to reduce tasks that require a lot of effort for a week or two.

### What happens to permanent implants?

Over time, the radioactive materials cease giving off radiation. It may take weeks, it may take months. The implant(s) are no longer active once the radiation is gone, thus they usually remain in place and do not pose any threat, so they do not need to be removed.

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