RADIOTHERAPY

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.

What is radiotherapy?
Radiotherapy (also known as radiation or X-ray therapy) is a cancer treatment that uses high energy X-ray beams to deposit energy into the cells in the treatment area to kill or damage the cancer cells.

Normal cells are also influenced by radiation. In contrast to cancer cells, most normal cells recover from the effects of radiation. However, normal tissue still needs to be protected from radiation as far as possible. The total dose of radiation is therefore limited to the dosage normal tissue can tolerate. Another precaution is to administer radiation treatment over varying periods of time and to limit body exposure.

Every patient's treatment is planned by a radiotherapist with the assistance of computer technology.

Aims of radiotherapy
The aims of radiotherapy include:
- to cure or shrink early-stage cancer
- prevent cancer from recurring elsewhere
- treat symptoms caused by advanced cancer to assist in improving quality of life.

Radiation, like surgery, is a local treatment, i.e. therapy that makes an impact on the immediate area to which it is applied. It therefore influences the tissue in the specific area of the body that is being treated. Radiotherapy does not reach all parts of the body, so it is not helpful in treating cancer that has spread to many places in the body.

Benefits associated with radiotherapy
There are numerous benefits associated with radiotherapy, such as:
- to destroy quickly dividing cells at the margins of tumours:
  - pre-operatively to keep cancer under control, prevent the spread of cancer and convert technically inoperable tumours into operable tumours
  - post-operatively, where the surgery may have missed cancer cells, leading to recurrence of the disease
- successfully eradicating growth without permanently damaging the adjacent, normal tissue
- the ability to use it in conjunction with other treatment; it may cure tumours where cancer is not responsive to a single agent
- the availability of radioactive seed implants that can deliver high doses of radiation directly to the tumour, sparing nearby, healthy cells.

How is radiotherapy administered?
Radiation may be given either externally or internally. The treatment you will receive depends on the type and stage of development of the condition, as well as its location.

Most people who receive radiation therapy for cancer get **external beam radiation.** The beams are created in a machine called a linear accelerator. The machine directs the high energy X-rays at the cancer, treating it and a small margin of normal tissue around the edges.

With external beam radiation therapy, a planning session will be necessary to determine the exact area to be treated.

A special mould, mask or cast of a body part might be made to make sure you are in the same position for each treatment and to help you stay still during treatment.

In some instances the radiation therapist will mark the treatment field with freckle-sized dots of semi-permanent ink. The marks will likely fade away over time, but are required until your treatment is finished, so do not use soap on these marks or scrub them off.

This form of therapy is carried out via outpatient visits to a hospital or treatment centre. Receiving external radiation does not make you radioactive, so no special safety precautions need to be taken at home.

When **internal radiation therapy** is used, the radiation source is placed inside the body. It can take the following forms:

- Brachytherapy is the term given to internal radiation therapy when the radiation source is solid. For brachytherapy seeds, ribbons or capsules that contain a radiation source are placed in your body in or near the tumour. It is a local treatment, meaning it only treats a specific part of your body. Safety precautions will need to be taken at home, as with brachytherapy the radiation source in your body will give off radiation for a period of time.
- Internal radiation therapy can also be administered orally or intravenously with a liquid source. This is known as systemic therapy. 'Systemic' means that the treatment travels in the blood to tissues throughout your body, seeking out and killing cancer cells. Although this type of radiation travels throughout the body, the radioactive substance mostly collects in the area of the tumour, so there's still little effect on the rest of the body. With systemic radiation, safety precautions are required at home, as your body fluids, such as urine, sweat and saliva, will give off radiation for a while.

Safety precautions will be advised on by your cancer treating team.

How long does treatment last?

The length of treatment is determined by the type of cancer and radiotherapy. Most cancers are treated with radiotherapy for five days per week over a six- to seven-week period. (When radiation is given for symptom control only, shorter treatment periods are used; usually two to three weeks). Every treatment lasts 10 to 20 minutes. The actual radiation therapy takes only a few minutes. Setting you up in the correct position accounts for the remainder of the time.

Important questions to ask about radiotherapy:

- What is the aim of radiotherapy for your type of cancer?
- What type of radiotherapy will you be receiving?
- What are the risks if you do – or do not– get radiation therapy?
- Are there other treatment options?
- What will radiation treatment be like?
- How often is it given? How long will each treatment take? How long will I be on radiation?
- What can you do to be ready for treatment?
- Can you eat before treatment or do you need to avoid certain foods before getting treatment?
- Is there a specific diet that needs to be followed whilst receiving treatment?
- What should you do if you have trouble getting to a treatment session because of transport problems or weather?
- How will the radiation affect the area near the cancer?
- What side effects are you likely to have, when will they start, and how long will they last?
- Will any of these side effects affect how you do things, such as eat or drink, exercise, work or school?
- Will treatment and side effects change how you look?
- Are there any long-term side effects that may be experienced?
- Will radiotherapy leave you at higher risk for any other health problems in the future?
- Will I be radioactive during or after my treatment?
- Are any special precautions needed during or after my treatment?

References

1. AMERICAN CANCER SOCIETY. Website. http://www.cancer.or.cancer.org.
2. CANCER ASSOCIATION OF SOUTH AFRICA (CANSA). Website. http://www.cansa.org.za.
3. ICON ONCOLOGY. *Radiotherapy*. Website. https://iconsa.co.za/radiotherapy/. South Africa.