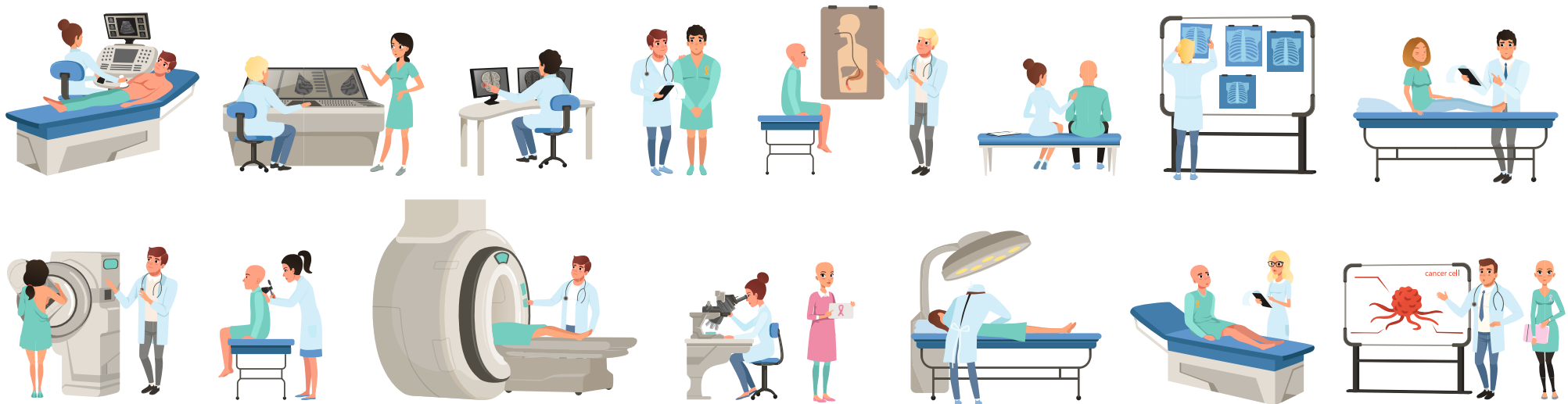




TYPES OF RADIATION ONCOLOGY TREATMENT



Overview:

Radiation Oncology is the branch of cancer therapy which makes use of high-energy radiation beams to target and destroy the cancer cells and stop their replication inside the body. Radiation therapy can be used alone or as an adjunct therapy along with surgery and chemotherapy for the management of cancer.

Types:

- **3D Conformal Radiotherapy (3D CRT):** An advanced form of cancer treatment where the radiation beams are focussed to match the exact shape of the cancer to kill them precisely and avoid harm to surrounding normal healthy cells.
- **Intensity-modulated Radiotherapy (IMRT):** An advanced form of radiation oncology that makes use of computer-assisted technology to deliver precise radiation dose at a specific area. The radiation dose intensity can be varied throughout treatment fields.
- **Volumetric Modulated Arc (VMAT):** This technology is useful for delivering radiation therapy near sensitive body organs. The key advantages of this technology include high precision, faster treatment and also reduced risk of side-effects.
- **Image-guided Radiation Treatment (IGRT):** This technology is used to target tumours that move, such as the lungs, prostate, liver. Imaging (X-ray) is used along with radiation therapy to improve the precision and accuracy of radiation delivery.
- **Respiratory Active Breath Coordination (ABC):** This technology provides non-invasive immobilisation of internal organs that are affected by breathing during treatment. It is useful for minimising the risk of radiation exposure to the heart during the treatment of left breast tumours.
- **Hypo Fractionated Radiation Treatment:** It is used as an adjunct therapy in early-stage breast cancer patients undergoing breast conservative surgery. As compared to conventional radiation therapy, this treatment requires fewer therapy sessions.
- **Stereotactic Body / Ablative Radiotherapy (SBRT / SABR):** It is used for precise targeting of tumours in the lungs, spine, liver, neck, lymph node or other soft tissues. It makes use of 3D imaging to target high doses of radiation to the tumour in a short overall number of treatment days (usually 1 to 5 days treatment).
- **Stereotactic Radiosurgery (SRS):** It involves a single radiation treatment to destroy small tumours in the brain or in the body.
- **Stereotactic Radiotherapy (SRT):** It is also employed for precise destruction of tumour cells in the brain and the spinal cord. As compared to SRS, it makes use of a series of radiation therapy over shorter time.
- **Image-guided Brachytherapy (IGBT):** It makes use of advanced imaging technology for accurate, safe and effective placement of radioactive implants (intra cavitory / interstitial implant) close to the cancer tissue. It is used alone or in combination with external radiotherapy.
- **Dedicated Big Bore 4D CT Simulator:** 4D CT simulator helps in knowing the movement of the tumour due to respiration. By using 4D CT simulator we can exactly know how much the tumour moves during respiration and give adequate margins to encompass the tumour while treating with radiation.

- **Eclipse contouring stations and the latest version of ADAC Pinnacle treatment planning system:** MHB is equipped with efficient and advanced treatment planning tools that allow the Radiation Oncology in tailoring treatment as per individual patient needs.

FAQs:

1. Is radiation therapy painful?

No external-beam radiation therapy is not painful.

During brachytherapy, the patient will be anaesthetized to block pain sensation while placing the radioactive source inside the body.

2. How long is a session of radiotherapy?

Most radiation therapy lasts not more than 5 to 20 minutes. In most cases, treatment is spread over several weeks to allow healthy cells to recover in between treatment.

3. What is the success rate of radiation therapy?

Radiation therapy is used as curative treatment and in early stages of cancer the cure rates are up to 90 to 95%. However, in advanced stages cure rates are 40 to 70%, which depends on the type of cancer. It is also helpful in relieving cancer-associated pain and improving patient's quality of life significantly. For example, radiation therapy is extremely effective in the overall management of prostate cancer with a 5-year survival rate of 98%.

4. Is radiation therapy the same as radiation oncology?

Radiation therapy or radiotherapy is the treatment of cancer using high-energy radiation beam.

Radiation oncology is the branch of medicine that deals with the management of cancer and its associated symptoms using radiotherapy.

5. Why do cancer patients need radiation?

Cancer is a condition characterised by uncontrolled growth of abnormal cells inside the body. These cells if left to grow inside the body, rapidly destroys the normal healthy cells thereby hindering normal body functioning. Radiation therapy is a type of cancer treatment, which makes use of high-energy radiation beam to kill cancer cells by damaging their DNA. When the DNA is damaged, the cancer cells are unable to multiple, thus they die, are broken down and removed from the body. This enables the patient to live a longer, healthy life.

6. How many radiotherapy treatments can you have?

The amount and the number of radiotherapy treatments differ from patient to patient depending upon the type of cancer, area to be irradiated, age, etc. As each organ can receive a limited amount of radiation to avoid complete tissue destruction, detailed radiation planning is done by the Radiation Oncologist before therapy.

7. What can you not do during radiation treatment?

Food plays an important role in reducing complications related to radiation therapy. Some foods may increase your risk of infections. You are advised to avoid food rich in unpeeled fruits and vegetables, spicy and oily food.