**IQRA NATIONAL UNIVERSITY**

**ID : 14245**

**PROGRAM :BS RADIOLOGY**

**MODULE : “6 SEMESTER”**

**INSTRUCTOR : MADAM ATOOFA AZMAT**

**DATE : 24:04:2020**

**PAPER: THERAPUETIC RADIOLOGY**

**Q NO 1: Explain when a patient will be needed radiation therapy?**

**Ans:** Radiation therapy may be needed in different situation such as before, during or after the surgery. Radiation therapy can be given except surgery or also with treatment.

Some of them people can be achieved radio and chemotherapy at one time. Different types of cancer have different radiation time.

If the radiation is done before the surgery it is known as pre-operative radiation therapy. Pre-operative radiation is given before surgery to shrink or weak the tumor cells.

When radiation is given during surgery called intra operative radiation therapy. IORT is bracheo therapy because it is external beam radiation therapy. When normal and tumor cells are adjacent to each other then we use intra operative radiation therapy to allow the use of external beam radiation therapy. When radiation is performed after surgery it produced some adverse effect. So it is safer after surgery.

Radio therapy and chemotherapy is most effective and called radio chemotherapy.

**Q NO2: Write a short note on the following.**

1. **Image guided radiation therapy :**

IGRT is therapy used for the precision and accuracy of therapy delivery to improve during radiation therapy.

It is used for the treatment of tumors for those areas which voluntary or to move. Those patient who are not examined during other modalities or patient can’t to control themselves. So IGRT is the choice for moving body or organs to imagining correctly. IGRT is used for the examination of liver, pancreas, lungs and prostate glands because these organs are prone to movement.

This procedure is done under controlled of oncologist dosimetrist and radiation therapists.

Physicians determine area and dose for diagnosis or examination.

Physicists and dosimetrist prescribe treatment.

1. **TOMOGRAPHY:**

It is a Greek word “tomos” which mean section. It produce two dimensional image via a 3D object.

Now it is achieved by moving X-ray tube source in one direction like that X-ray film. Which are move in opposite direction.

Tomography is used for internal structures of the body which show inside organs in bones. It makes or produce 3D image of the body.

It is also can be defined as imaging of an object by analyzing its slice.

1. **INTENSITY MODULATED RADATION THERAPY**

IMRT is a delivering of precise radiation to a tumor by using linear accelerators and reduce radiation dose to the surrounding lattice.

IMRT cause mutation of DNA and damaged them therefore stops neoplasia cells and stops them from dividing.

IMRT use the linear accelerators. Due to linear accelerator it delivers precise radiation doses to a malignant tumor.

IMRT use the high level radiation doses that show tumor clearly.

1. **STEREOTACTIC RADIO SURGERY**

It is a therapy which is utilized for the treatment of small tumor and functional abnormalities of the brain or we can say the delivery of a single or irradiation to a small and critically located tumor, sparing normal structure.

1. **PROTON THERAPY:**

It is a therapy which used proton to irradiate disease (tumor) mostly cancer.

It is used to treat prostate cancer, skull, lungs and neck tumors.

**Q NO 3: What are the potential side effects of radiation therapy?**

**ANS** : Radiation therapy can manifest the stochastic and deterministic effects.

Acute effects occurs early and immediately while chronic effects appear after week or month. Side effect of radiation will appear being tissue that are irradiated or locally.

Acute effects include nausea, vomiting and diarrhea. These symptoms occur stochastically or immediate.

While chronic effects include skin rashes, leukemia and genetic changes.

THE END