Radiation Technology

1. Overall Aims of Course:

1. Understand how radiotherapy is delivered (treatment machines,
2. treatment planning, and brachytherapy).
3. Understand different techniques of radiation including conformal radiotherapy and stereotactic radiation therapy,
4. Understand the radiobiological effects of radiation therapy and radioisotopes.

2. Intended Learning Outcomes of Course (ILOs)

a) Knowledge and understanding:

By the end of the course, the student is expected to be able to:

a1. List the different pretreatment procedures
a2. Describe the planning procedures for radiotherapy
a3. List the delivering radiotherapy
a4. Mention new modalities of radiotherapy
a5. Mention the radiotherapy toxicities
a6. Mention radioisotopes

b) Intellectual Skills

By the end of the course, the student is expected to be able to:

b1. how to take a decision in a cancer patients need radiotherapy
b2. understand different rationale of radiotherapy
b3. understand different techniques of planning and delivering radiotherapy
b4. know management of side effects of radiotherapy
b5. know using of radioisotopes in diagnosis and managment

c) Practical Training aspects:

c1. Know the properties of the simulator machine
c2. Understand different position of the patients during planning
c3. Understand different methods of fixation in mould rooms
c4. Understand different methods of brachytherapy
c5. Understand different new modalities of planning and radiotherapy
c6. know different radioisotopes and their uses and precautions

d) General and Transferable Skills:

By the end of the course, the student is expected to be able to:

d1. know different modalities of radiotherapy
d2. know different techniques of delivering radiotherapy
d3. know different methods of patient fixation
d4. Know new modalities of radiotherapy

d5. Understand using radioisotopes in diagnosis and management of malignant diseases

Radiation technology

Topics No. of hours

Lecture Tutorial

/Practical

General technology

• physical and biological basis of radiation therapy
• clinical radiation physics
• recent modalities of radiotherapy
• brachytherapy
• radioisotopes

Radiotherapy techniques and planning for different types of malignant diseases

• skin
• head and neck
• breast
• thorax
• GIT
• Urinary tract
• Male genital tract
• Female genital tract
• CNS
• Leukemia & lymphoma and HD
• Musculoskeletal
• Childhood cancers

List of References

6.1- Essential Books (Text Books)

* Perez text book
* James D. cox (radiation oncology)

6.2- Recommended Books

* Ann Barrett (practical radiotherapy planning)