Radiation Oncology Clerkship

Radiation Oncology is a fascinating and dynamic field requiring the integration of a practitioner's knowledge of physics, biology, anatomy, imaging, and medicine in delivering optimal treatment for cancer patients, often as a part of a multi-disciplinary team. While the focus of the rotation is on the clinical application of radiation therapy modalities for the treatment of cancer patients, an emphasis will also be placed on biological effects of radiation exposure, response to radiation emergencies, and force and population protection measures that will help prepare a framework for understanding the implications of a radiological emergency, and prepare the student to develop appropriate contingency plans.

OBJECTIVES The rotating Medical Student will meet the following learning objectives.

Medical Knowledge:
- Learn the appropriate diagnostic evaluation, staging and prognosis of the various major cancers (prostate, breast, colorectal, lung, GYN, CNS, head and neck, other GI) treated with radiation therapy.
- Learn the appropriate indications and use of radiation therapy in the curative setting for the common cancer types.
- Learn the appropriate use of radiation therapy in the palliative setting.
- Understand acute and late term side effect and risk profiles of radiation therapy in the acute and late setting
- Understand a radiation prescription.
- Understand the basics of simulation, treatment planning and treatment delivery by working with radiation therapists, dosimetrists and physicists.
- Understand the basic concepts of radiation biology.

Patient Evaluation and Care:
There are 5 basic types of patient encounters in Radiation Oncology: Consultation, Simulation, Treatment Delivery, On-Treatment Visit (OTV), and Follow-ups.

1. Consultations:
- Obtain the relevant history and diagnostic workup and perform physical examinations of the cancer patient.
- Present the relevant details of the H&P and workup to the attending physician.
  (2-4/week)
- Formulate a cancer treatment plan with the attending physician.

2. Simulation and Treatment Planning:
- Assist in the careful design of a course of radiation treatment during patient
simulation and treatment planning.
- Understand the workflow process in radiation planning and the involvement of radiation therapists, dosimetrists and physicists.
- Become familiar with radiation treatment planning software.

3. Treatment Delivery:
- Observe the delivery of radiation treatment: Linear Accelerator based photon therapy (all sites), Electron therapy (all sites), High Dose Rate (HDR) Brachytherapy (NMCSD, NMCP, TAMC), Low Dose Rate Brachytherapy (NMCSD, WRNMMC, NMCP); intensity modulated radiation therapy (IMRT) (TAMC), volumetric modulated arc therapy (VMAT) (TAMC), stereotactic radiosurgery (SRS) and stereotactic body radiation therapy (SBRT) (TAMC, WRNMMC); unsealed radionuclide administration (NMCSD, WRNMMC, Portsmouth Nuc Med).
- Assist in set-up of patients for daily treatment with the Radiation Therapists.

4. On-Treatment Visits:
- Evaluate patients for the acute effects of radiation treatment during weekly status check visits and provide appropriate management of these effects.

5. Follow-ups:
- Evaluate patients for tumor response, late effects of radiation therapy, and their management.

EXPECTATIONS
- Participate in patient evaluation in clinics. The level of student responsibility will be discussed prior to each clinic with the attending. In general, you will be expected to perform complete H&Ps for new patient consultations and to follow at least 1 patient/week through simulation and treatment planning. While you should develop a plan of care to propose for case based learning with your attending. Please do not advise patients without prior discussion with the attending.
- Attend multidisciplinary tumor boards and chart rounds.
- Oral Presentation: For those doing a 4 week elective, an oral presentation is required at the end of the rotation. The presentation should be based on a case that was seen by the student during the rotation, or on the student’s own research in Radiation Oncology (if applicable). The focus should be on the case presentation, the cancer treatment plan including details of the radiation and a concise review of relevant literature. It will be helpful to identify an interesting case during the first 2 weeks of the rotation, and attending assistance and guidance are available. Mentorship and guidance will be provided by the attending, and the topic should be discussed prior to preparation of the presentation.
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