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Assignment :- Therapeutic Radiology

Subject Teacher :- Dr Atoofa Azma

Semester 6th Radiology

Q1) What medical problems (diseases) could be treated under the field of therapeutic radiology. Explain with examples.

Conditions Treated With Radiation Therapy :-

Radiation therapy is used many conditions, including

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Acoustic Neuroma:

Non-cancerous tumor that may develop from an overproduction of Schwann cells that press on the hearing and balance nerves in the inner ear.

Arteriovenous malformations

An abnormal set of connections between arteries and veins usually occurring in the brain and spine, causing neurologic symptoms or bleeding.

Bone Cancer:

An abnormal growth of cells within a bone that may be cancerous or benign.

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Brain tumor: An abnormal growth of tissue (tumor) in the brain that may be cancerous or non-cancerous.

Breast Cancer: A disease in which malignant (cancer) cells form in the tissues of the breast.

Chondrosarcoma: A malignant type of bone cancer that primarily affects the cartilage cells of the femur (thighbone), arm, pelvis, knee, and spine.

Although less frequent, other areas (such as the ribs) may be affected.

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Colon Cancer:

A disease that is indicated by malignant cells in the colon or rectum.

Esophageal Cancer:

A disease in which cancerous cells form in the tissues of the esophagus.

Ewing's Sarcoma:

A type of cancer that occurs primarily in the bone or soft tissue, most often found in the extremities and can involve muscle and the soft tissues around the tumor site as well as spread to other areas of the body.

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Leukemia:

Cancer of the blood that develops in the bone marrow, which produces the three major blood cells: White blood cells, Red blood cells and Platelets.

Liver Cancer:

Cancer that starts in the cells of the liver. Viral hepatitis and liver damage from alcohol or fatty liver are risk factors for liver cancer.

Lung Cancer:

Cancer that usually starts in the lining of lungs, but can also begin in other areas of

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The Respiratory System

Lymphoma:

Cancer that starts in cells called

lymphocytes, which are part of the body's immune system.

Meningioma:

A type of tumor that grows from the protective membranes, called meninges, which surround the brain and spinal cord, and is often benign and slow-growing.

Pancreatic Cancer:

Cancers that begin in the pancreas.

Prostate Cancer:

A type of cancer that occurs when cells grow abnormally in the prostate.

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gland and germ tumors.

(Q2) Elaborate the duties of therapeutic radio technologists in department.

Therapeutic Radio Technologist

Therapeutic radiologic technologist

is using medical imaging equipment

to produce images of tissues,

organs, bones and vessels and,

with advanced training, assisting

in the administration of

radiation therapy treatments.

Radiologic technologists can also

specialize in specific areas of

the radiology field such as

magnetic resonance imaging (MRI)

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Sonography, Mammography,
Computed Tomography (CT),
Nuclear Medicine, and Radiation
therapy.

Duties Of Therapeutic Radio Technologist:

A professional technologist will
also possess strong inter-
personal skills and a pleasant
bedside manner, similar to
other healthcare professionals
including nurses and medical
doctors.

- A well trained technologist
will be able to give
straight forward instructions as
well as foster a sense

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of Comfort and Confidence
in Patients

→ Explaining Procedures to
Patients and Answering
questions

→ Preparing equipment for use
as needed.

→ Preparing Examination Rooms
for Patient Exams.

→ Positioning Patients for
imaging Exams.

→ Documenting information with
Computers.

→ Reporting important information
to the Physician.

→ Ensuring Safety of Patients
during Exams.

→ Producing diagnostic images
of soft tissues.

- Using Solid Masses to obtain images of organs and tissues in the body.
- Administering targeted doses of radiopharmaceuticals to the cancer or other diseases of patients body to treat.
- Administering targeted doses of radiopharmaceuticals to patients to obtain functional information about organs, tissues and bones.
- Measuring bone mineral density at a specific anatomical site.

Q3) What are the complications and side effects that a person could face during his/her treatment in therapeutic radiology department

Radiation Therapy Side Effects:

It's very important to remember that every person reacts differently to treatment. Any side effect you might have depends on the type and location of cancer, the dose of radiation being given, and your general health. Some people have few or no side effects, while others have quite a few.

Early And Late effects of Radiation Therapy:-

Early Side Effects:- happen during or shortly after treatment. These side effects tend to be short in mild and treatable. They're usually gone within a few weeks.

(12) after treatment (12) ends. The most common early side effects are fatigue (feeling tired) and changes. Other early side effects usually are related to the area being treated, such as hair loss and mouth problems. When radiation treatment is given to these areas.

Late Side effects:-

can take months or even years to develop. They can occur in any normal tissue in the body that has received radiation. The risk of late side effects depends on the area treated as well as the radiation dose that was used. Careful treatment planning can help avoid serious long-term side effects. Always best to talk to your radiation oncologist about the risk of long-term side effects.

Short-term Side effects:-

- > Headaches
- > Hair loss

- Nausea
- Vomiting
- Extreme tiredness (fatigue)
- Weight loss
- Skin and scalp changes
- Trouble with memory & speech
- Seizures

Common Side effects:-

- Hair loss at treatment site
(Sometimes permanent), skin irritation at treatment site, fatigue.
- Dry mouth, thickened saliva, difficulty swallowing, sore throat, changes in the way food tastes, nausea, mouth sores, tooth decay.
- Difficulty swallowing, cough, Shortness of breath.
- Nausea, Vomiting, Diarrhea
- Diarrhea, bladder irritation, frequent urination, Sexual

dysfunction.

Qul Describe a correlation between therapeutic radiology and oncology

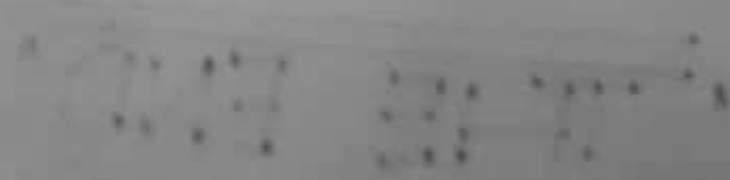
Ans Therapeutic radiology is also called radiation oncology or radiation therapy. It is the treatment of cancer and other diseases with radiation. Oncology is the branch of medicine that focuses on diagnosing and treating cancer. Radiation in many forms is used to kill cancer cells by preventing them from multiplying. Therapeutic radiology may be used to cure or control cancer. Or may be used to ease some of the symptoms linked cancer.

Therapeutic radiology treatments can be confusing and

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Successful for both you and
your family. If you have
Questions or Concerns about
the treatment, Ask your Radiation
Oncologist. A Radiologist is a
Physician who uses imaging
methodologies to diagnose and
manage Patients, and Provide
therapeutic Options. Physicians
Practicing in the Field of
Radiology Specialize in Diagnostic
Radiology, Interventional Radiology,
or Radiation Oncology.

They may Certify in a
number of Subspecialties.
The board also Certifies
in Medical Physics and
issues Specific Certificates
in each discipline.

16) A Radiologist is a Physician who uses imaging techniques to diagnose and manage patients. Radiation oncology is a branch of clinical medicine devoted to the treatment of both malignant and benign diseases with ionizing radiation. The Radiologist Oncologist heads a team of nurses, radiation therapists, dosimetrist and medical physicist who are involved in the evaluation, planning, delivery and follow up of patients treated with radiation. In its early years of development, radiation oncology was considered a sub-specialty within radiology. Traditionally referred to as therapeutic radiology. During



that time radiologists received training in both diagnostic and therapeutic radiology. Over the years, as each of these disciplines became more complex, the training and certification process for radiation oncology became separate from diagnostic radiology.

Radiation oncology is an extremely rewarding, challenging field. The field is particularly appealing to those who enjoy the quantitative nature of radiation oncology and the humanistic aspect of direct care of cancer patients.

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