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Editorial

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Radiation Oncology which deals with Utilization of High Energy Radiations

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Editorial:

Radiology, also known as roentgenology is a branch of science which deals with diagnosis and treatment of diseases with the aid of electromagnetic radiations, and some radioactive elements. The physician with specializes in this particular field is called a Radiologist.

Medical imaging is also known as Diagnostic imaging, they utilise ionizing radiations, except MRI and ultrasound. Sometimes even radioactive substances are used to produce visual images of the internal structures and any abnormalities like cancer related, heart related, etc. there are varied types of techniques being utilised to detect the disease.

Nuclear medicine imaging is a type of medical imaging, which utilises radiotracers that help in diagnosis of various diseases like cancer, heart problems, gastrointestinal problems, other abnormalities present in the body. This type of scans usually provides apt and precise results which are needed to make the diagnosis at an early stage.

Interventional radiology is a medical sub-specialty of radiology utilizing minimal invasive imaging techniques to treat or diagnose the illness in nearly every organ system. The aim behind interventional radiology is to diagnose and treat patients using the least invasive techniques currently available in order to minimize risk to the patient and improve health outcomes. These procedures have less risk, less pain and less recovery time in comparison to open surgery. For example-angioplasty, stenting, atherectomy, cryoplasty, thrombolysis, and embolization etc.

Radiation therapy is a modern technique used commonly for destroying the cancerous cells present in the affected area. This therapy generally utilises the Electromagnetic radiations like (x-rays, gamma rays, protons etc.), targeted to the affected area. Sometimes to produce high energy radiation, accelerators are being used which increases the energy of the radiation and helps in destroying the target cells effectively. Most commonly used accelerators is cyclotrons, cobalt-60.

Radiation oncology is that branch of radiology which deals with utilization of high energy radiations to treat the malignant or sometimes even benign form of carcinoma. Utilization of ionising radiations like (external beam radiations, internal radiations therapy).

Radiation chemistry is a subclass of nuclear chemistry which deals with the study of chemical consequences occur due to radiation on the biological matter; this is very different from radiochemistry as no radioactivity needs to be present in the material which is being chemically altered by the radiation.

Teleradiology deals with sharing the patient reports and images like their CT, MRI, and X-Ray with other radiologists or physicians. The patients care has improved and it has provided better and effective services without the physician actually being present at the location of patient.

CT and MRI are the techniques mainly used in diagnostic imaging. A CT Scan (or CAT scan) is best suited for viewing bone injuries, diagnosing lung and chest problems, and detecting cancers. An MRI is best suitable for imaging soft tissue in ligament and tendon injuries, spinal cord injuries, brain tumors, etc. CT scans are widely used in emergency cases because it can reveal internal injuries and bleeding quick enough to save someone's life. Whereas an MRI, can take up to 30 minutes.

Radiobiology (also known as radiation biology) is a field of clinical and basic medical sciences that involves the study of the action of ionizing radiation on living things. Radiobiology, in general terms, is the science that estimates the effects of radiation in living bodies. In the field of radiation oncology, it is defined as the science that studies the interactions between ionizing radiation and living systems, and the consequences of these interactions.