Answering the Clinician's Needs

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Radiology has come a long way from the days of X-ray and dark room procedures to the present-day digital radiography, computed tomographic (CT) scan, magnetic resonance imaging (MRI), positron emission tomography-CT (PET-CT), and PET-MRI.

Radiologists today have clinically more interactive roles. They are the medical detectives, who by putting together the pieces of puzzles available in the form of patient's scans, laboratory results, and clinical findings arrive at the correct diagnosis.

Nowadays, clinical radiologists are involved in patient care at every step from the time of admission until their discharge from the hospital and subsequent follow-up. The radiologist's role begins with helping the clinician to decide the right type of radiologic investigation for the patient and acquisition of high-quality diagnostic images to reach to the correct diagnosis. Time is of the essence here, as clinicians expect the radiologists to correctly solve the diagnostic puzzle in the shortest possible time frame to timely initiate an effective treatment regimen and thus save the precious lives.

The radiologists help in treatment planning by providing a roadmap to surgeons so as to decide the right surgical approach. In the eventuality of postsurgical complications such as collection or hematoma or collections related to inflammatory disease such as pancreatitis, diverticulitis, or appendicitis, and so on, the diagnosis is easily made by cross sectional imaging. Interventional radiologist has come to the fore in nonsurgical management of these complications by percutaneous catheter drainage, thereby avoiding major surgeries and reducing the morbidity and mortality.

They also help the radiation oncologist in the radiotherapy planning by marking the tumor in the CT scan or MRI carried out for the purposes of radiotherapy planning and the urologist in MR fusion biopsies of the suspected cases of prostate cancers.

Clinicians also expect radiologists to be involved not only in the initial diagnostic workup of the patient but also to help reach a histopathologic diagnosis in equivocal cases in which a diagnosis cannot be reached by imaging alone. Hence, image-guided biopsies are a potent tool in the radiologist's armamentarium in today's practice.

Interventional radiology plays an important role in nonsurgical treatment of tumors such as hepatocellular carcinomas and renal cell carcinomas by transarterial chemoembolization (TACE), transarterial radio embolization (TARE), thermal ablation, or cryoablation. The interventional radiologist also treats aneurysms and arteriovenous malformations (AVMs) by coiling or glue. Percutaneous transhepatic biliary drainage and percutaneous nephrostomy are routinely performed in cases of obstructive jaundice and hydronephrosis, thus alleviating the patient's symptoms until a definitive surgery is performed or for palliation.

PET-CT and PET-MRI are used to stage cancers from the head to toes, letting the clinician know about the extent and burden of the disease and in posttreatment follow-up.

High-resolution ultrasound, contrast-enhanced ultrasound, and elastography are being used, not only to diagnose but also to characterize the lesion, especially in the liver. Ultrasound is being used effectively in emergency situations to rule out pneumothorax, pleural effusion, intra-abdominal fluid, or cardiac tamponade. Focused assessment with sonography for trauma (FAST) is point-of-care ultrasound evaluation performed at the time of initial presentation of a trauma patient to the emergency department. It can also reveal bone fractures.

Teleradiology is already well established and is helping the clinicians across the globe to get the right diagnosis at their door-step in shortest possible time. Artificial intelligence is evolving and coming up in a big way and may help the clinicians in far-flung areas to reach a diagnosis in a time efficient manner

Thus, radiologists are now an integral member of the multidisciplinary team dedicated to the integrated care of the patient.

Conflict of Interest
None declared.

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