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EDITORIAL

Scopes and Opportunities of Interventional Radiology in Clinical Settings

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Interventional radiology is the medical sub-specialty of radiology. Minimally-invasive image-guided procedures are applied to diagnose and treat diseases in nearly every organ system of the body. In compared to open surgery, it is less risk, less pain with less recovery time. There are several diseases and organs amenable to Interventional radiology which are vascular diseases, gastrointestinal diseases, hepatobiliary diseases, genitourinary diseases, pulmonary diseases, musculoskeletal diseases and central nervous system diseases. There are many advantages of interventional radiology. It can reduce the risks and can shorten the hospital stays. It has lower costs than open procedure. There is greater comfort in this procedure. It is well-established that it gives quicker convalescence and early return to work. It is often better than traditional treatments.

Clinical interventional oncoradiology is one of four pillars of a multidisciplinary team approach. The others three pillars of cancer care are medical oncology, surgical oncology and radiation oncology. There are many types of therapeutic interventional oncology. Treating of regional cancers are the part of interventional oncology and are involving several areas of the liver with chemoembolization or radioembolization. Again, during treating focal lesions in the kidney, liver, lung and bone the cryoablation (freezing) or microwave ablation (heating) are applied.

Application of interventional oncology is well known in the developed country. Cancer can't be surgically removed or effectively treated with systemic chemotherapy. Frequently used in combination with other therapies are provided by other members of the cancer team. There are many uses of therapeutic procedures. There are several intra-arterial procedures like chemoembolization (TACE), chemoembolization (DEB) and radio-embolization.

Tumor ablation are done by cryoablation, radiofrequency ablation (RFA) and microwave ablation. Supportive Procedures like paracentesis or thoracocentesis, PICC line placement, tunneled catheter placement, port catheter placement and percutaneous biliary drainage are also used as interventional radiology. In the radiofrequency ablation the u**se** of radiofrequency (RF) energy is used to kill cancerous tumors like radiofrequency ablation (RFA) of lung. Feeding tube is inserted into the stomach those patients who are unable to take sufficient food by mouth and this is known as gastrostomy tube.

Chemoembolization is another way applied as interventional radiology. Delivery of cancer-fighting agents directly to the site of a cancer tumor. Currently it is used mostly to treat cancers of the endocrine system and liver cancers. During embolization, the delivery of clotting agents like coils, plastic particles, gel, foam are directly responsible to bleed the site. Blockage of blood flow to an aneurysm or a fibroid tumor in the uterus is also treated as interventional radiology.

Interventional radiology is also applied as diagnostic test for breast, lung and other cancers which is an alternative to surgical biopsy. Transjugular Intrahepatic Portosystemic Shunt (TIPS) is a life-saving procedure to improve blood flow and prevent hemorrhage in patients with severe liver dysfunction. Another produce is vertebroplasty. It is a pain treatment for fractured vertebra in which medical-grade bone cement is

injected into the vertebra. During biliary drainage and stenting a stent (small mesh tube) is used to open up blocked ducts and allow bile to drain from the liver**.** There are several other procedures like angiography**.** X-ray of the arteries and veins are also used to diagnose blockages and other blood vessel diseases. During using a catheter to enter the blood vessel a contrast agent is given to make the artery or vein visible on the X-ray.

The balloon angioplasty is also used as interventional radiology. It opens blocked or narrowed blood vessels by inserting a very small balloon into the vessel and is inflating it. It unblocks clogged arteries in the legs or arms in peripheral arterial disease, kidneys, brain or elsewhere in the body. In central venous access, insertion of a tube into blood vessels are made to give medication or nutrients directly into the blood stream and to collect blood for investigation.

Treatment of abscess is performed by draining the pus of abscess by inserting a catheter and to treat complications of open surgery. In urology, during treatment of urinary tract obstruction by kidney stones or other obstructions, a catheter is inserted into the blocked kidney to drain the urine. In gynaecology uterine fibroid embolization is treated with the concept of interventional radiology by cutting off the blood supply to the fibroid which causes them to shrink and die; therefore the symptoms are also subsided. This is also known as uterine artery embolization (UAE**).** In vena cava filter a tiny cage-like device is inserted in a blood vessel to break up clots to prevent them from reaching the heart or lungs and also to prevent from pulmonary embolism.

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