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The EANM's Parathyroid Imaging Practise Recommendations

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Introduction

Nuclear medicine and radiology are two related medical fields that use imaging techniques to diagnose and treat a wide range of diseases and conditions. Both fields involve the use of radiation and advanced technology to produce detailed images of the human body, allowing physicians to see inside the body and better understand the underlying causes of medical problems. Radiology is the medical specialty that uses medical imaging technologies such as X-rays, CT scans, MRI scans and ultrasound to diagnose and treat diseases and injuries. Radiologists use these techniques to create images of internal organs, bones and tissues to diagnose and treat a wide range of medical conditions. One of the most commonly used techniques in radiology is X-ray imaging, which uses a small amount of radiation to create images of the body [1].

Description

X-rays are often used to diagnose bone fractures, dental problems, lung disease and other conditions. X-rays can also be used to create images of the digestive system, such as the stomach and intestines, to diagnose conditions like ulcers, tumors and blockages. Computed tomography (CT) scans are another important technique used in radiology. CT scans use multiple X-ray images to create a detailed, 3D image of the body. This technique is particularly useful in diagnosing and treating cancer, as it can provide detailed images of tumors and other abnormal growths.

In primary hyperparathyroidism (pHPT), nuclear medicine parathyroid imaging is crucial for identifying hyperfunctioning parathyroid glands and in secondary hyperparathyroidism (sHPT), it may also be useful prior to surgical treatment. Scintigraphy or positron emission tomography (PET) parathyroid radionuclide imaging is a highly sensitive method for determining the number of hyperfunctioning parathyroid glands, either at typical locations or ectopically. In the majority of cases with a single adenoma, pHPT is treated with minimally invasive parathyroidectomy. The precise preoperative localization of one or more hyperfunctioning parathyroid adenomas is crucial to the success of surgery in skilled hands. If the hyperfunctioning parathyroid gland is not found prior to surgery, minimally invasive parathyroidectomy may require bilateral open neck exploration.

Medical professionals have to make the final decision about whether or not a particular procedure or course of action is appropriate, taking into account the particulars of each case. As a result, there is no suggestion that an approach that deviates from the guidelines is below the standard of care on its own. Contrarily, a conscientious practitioner may responsibly adopt a different course of action than that outlined in the guidelines if, in the practitioner's reasonable judgment, the patient's condition, resources limitations, or advancements in knowledge or technology since the guidelines were published suggest otherwise. The science and art of dealing with disease prevention, diagnosis, treatment and relief comprise the practice of medicine.

Magnetic resonance imaging (MRI) is another important imaging technique used in radiology. MRI uses a strong magnetic field and radio waves to produce detailed images of the body's internal structures. MRI is particularly useful in diagnosing conditions such as brain and spinal cord injuries, multiple sclerosis and joint problems. Ultrasound imaging is another commonly used imaging technique in radiology. Ultrasound uses high-frequency sound waves to create images of the body's internal structures. This technique is particularly useful in diagnosing conditions such as heart disease, fetal abnormalities and gallbladder disease.

Nuclear medicine is another medical specialty that uses radiation to diagnose and treat diseases. Nuclear medicine uses small amounts of radioactive material, called radiopharmaceuticals, to produce images of the body's internal structures. Radiopharmaceuticals are typically administered orally or intravenously and travel through the bloodstream to the targeted organ or tissue. The radiopharmaceuticals then emit gamma rays, which are detected by specialized cameras and used to produce images of the internal structures. One of the most commonly used techniques in nuclear medicine is positron emission tomography (PET) imaging. PET imaging uses radiopharmaceuticals that emit positrons, which are detected by a PET scanner. The resulting images can be used to diagnose and monitor a wide range of conditions, including cancer, heart disease and neurological disorders. Another important technique in nuclear medicine is single-photon emission computed tomography (SPECT) imaging. SPECT imaging uses radiopharmaceuticals that emit gamma rays, which are detected by a SPECT scanner. SPECT imaging is particularly useful in diagnosing and treating heart disease, as it can provide detailed images of the heart's blood flow [2-5].

Conclusion

Both radiology and nuclear medicine play important roles in modern medicine. These fields use advanced imaging techniques to diagnose and treat a wide range of medical conditions, from broken bones to cancer. Radiology and nuclear medicine are constantly evolving, with new techniques and technologies being developed all the time. As medical technology continues to advance, these fields will remain critical to the diagnosis and treatment of disease.

Acknowledgement

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Conflict of Interest

None.

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