PET/CT Scan

What is Positron Emission Tomography – Computed Tomography (PET/CT) Scanning?

Positron emission tomography, also called PET imaging or a PET scan, is a type of nuclear medicine imaging. Using a small amount of radioactive material (radiotracer) consumed by the body, a PET scanner measures important body functions, such as blood flow, oxygen use, and sugar (glucose) metabolism, to help doctors evaluate how well organs and tissues are functioning. The scanner works by detecting radioactive emissions from the radiotracer and producing pictures that provide molecular information. Today, almost all PET scans are performed on combined PET and CT scanners. The combined PET/CT scan provides images that pinpoint the anatomic location of abnormal metabolic activity within the body. The combined scan has been shown to provide more accurate diagnoses than the two scans performed separately. The exam is usually performed on an outpatient basis and, like most Nuclear Medicine procedures and CT scans, is painless.

CPT Codes

78814 Limited PET/CT (used very infrequently)
78815 Standard PET/CT (eyes to thighs)
78816 Whole body PET/CT (typically only for patients with melanoma or sarcoma)

Indications

Detect cancer, determine whether a cancer has spread in the body, assess the effectiveness of a treatment plan (such as cancer therapy), determine if a cancer has returned after treatment, determine blood flow to the heart muscle, determine the effects of a heart attack on areas of the heart, identify areas of the heart muscle that would benefit from a procedure such as angioplasty or coronary artery bypass surgery (in combination with a myocardial perfusion scan), evaluate brain abnormalities, map normal human brain and heart function.

Contraindications

Not recommended for women who may be pregnant. Patients with kidney disease are at higher risk when CT contrast is used.

How Does The Patient Prepare?

The patient will receive specific instructions, based on the type of PET scan being performed. The patient will be asked to not eat anything, and to not drink any liquids containing sugars or calories for several hours prior to the exam. Instead, drinking water will be encouraged. The patient should provide a list of all medications taken, any medical conditions, recent illnesses, and allergies, especially to contrast materials, iodine, or seafood. Women should always inform the physician and technologist if they are breastfeeding, or if there is any possibility of pregnancy. Diabetic patients will receive special instructions to prepare for the exam. Jewelry, eyeglasses, removable dental prosthetics, hearing aids, hairpins and other metal materials will be removed.

What Happens During the Test?

The patient will be positioned on the exam table. A radioactive material called a radiopharmaceutical, or radiotracer, will be injected, swallowed or inhaled as a gas. Typically, it will take approximately 60 minutes for the radiotracer to be absorbed by the organ or tissue being studied. During this time, the patient will be asked to rest quietly. As the radiotracer accumulates in the organ or area in question, it gives off a small amount of energy in the form of gamma rays. The CT exam will be done first, which takes about two minutes, and will be followed by the 20- to 30-minute PET scan. The PET scan will detect the gamma ray energy emitted and, with the help of a computer, create pictures offering details
of both the structure and function of organs and tissues in the body. On occasion, a second CT scan with IV contrast will follow the PET scan. The patient may be asked to drink some contrast material that will localize in the intestines and help the radiologist interpreting the study.

**After the Procedure**
Unless otherwise instructed, the patient may resume normal activities after the exam. Instructions will be given to drink plenty of water to help flush the radioactive material out of the body. Except for the IV injection, most PET/CT scans are painless and are rarely associated with significant discomfort or side effects.

**The Results**
A radiologist will analyze the images and send a signed report to the referring physician within one to two business days.

(Information adapted from www.radiologyinfo.org)

This information is intended for use as merely a guideline for referring physicians and their staff members only. It contains information pertaining to the most commonly ordered exams and indications. However, Shawnee Mission Medical Center Radiology does not recommend any particular examination. Individual radiologist preference or patient circumstances may dictate ordering alternative studies. Although contrast codes are not needed to place an order, the following contrast codes may be used in placing orders:

CT Contrast Q9967, MRI contrast A9577 and A9579.