
Ictal SPECT

F.E. Dreifuss Comprehensive Epilepsy Center

WHAT IS A SPECT SCAN?

SPECT is an abbreviation for single photon emission computed tomography. A SPECT scan is a nuclear radiology study that measures the blood flow in the brain and helps us identify the region of the brain your seizures come from.

HOW DOES IT WORK?

SPECT measures how the blood flows in your brain—lighting up areas with more flow. During a seizure, the area of the brain where the seizure began has increased blood flow. In between seizures there can be less blood sent to this area. Using this information, the blood flow measured by SPECT can help us determine the location where your seizures may start.

HOW IS AN ICTAL SPECT SCAN PERFORMED?

This study is performed during an admission to the Epilepsy Monitoring Unit. Within 60 seconds from the start of your seizure, a nurse will inject the radioactive tracer (containing a very low dose of radioactivity) into your IV. The tracer travels to your brain and marks the area where the blood flow is increased during your seizure. The tracer does not affect your brain or cause any symptoms; you will not feel it. Within 3 hours of the injection, you will get a CT scan. During the CT scan, you will lie on a narrow table while a camera circles your head; the scan will take approximately 20 minutes to complete.

WHAT IS THE DIFFERENCE BETWEEN AN “ICTAL SPECT” AND AN “INTERICTAL SPECT” SCAN?

During your admission, you may receive two scans: An ictal SPECT and an inter-ictal SPECT. Both scans involve a nurse injecting a small amount of a radioactive tracer into an IV in your arm. The ictal SPECT injection occurs during a seizure and an inter-ictal SPECT injection occurs when your brain is at rest and no seizure activity is occurring. The scans will be performed on two different days. A comparison of the ictal and inter-ictal scans may reveal an area of abnormal blood flow showing the area of your brain that your seizures are coming from.

SAFETY CONSIDERATIONS DURING THE SPECT

In order to ensure your safety and to maximize the opportunity of receiving a high quality ictal SPECT scan, you will be asked to remain in your bed at all times between the hours of 8:00am and 3:00pm when the tracer is on the unit. A urinal or bedpan will be provided for toileting and a staff member can assist with any additional needs during this time.

CONSIDERATIONS FOR VISITORS/FAMILY MEMBERS

The radioactive tracer remains in the body for up to 24 hours after injection and is excreted through the urine and sweat, therefore it is important to not touch the IV where the tracer was injected or any bodily fluids unless gloves are worn.