SPECT Scans

A **SPECT** brain scan is a very specialized study of the brain. SPECT stands for **S**ingle **P**hoton-**E**mission **C**omputed **T**omography. This study uses the injection of a radioisotope as a marker substance. It is carried in the blood to the tissues.

PROCEDURE

- During the exam, the patient receives an injection in the vein (*intravenous*) of a very small dose of radioactive material. The level of radioactivity is extremely low. It has no side effects.
- The isotope passes into the tissue. The radiation can be detected using a gamma camera. The greater the blood flow, the more the injection is taken up by the tissue of the brain.
- During the exam, you will need to lie flat on your back without moving. Using a special nuclear medicine camera, pictures of your brain are taken. The camera shows and makes a record of the supply of the radioactive material in the brain. About 30 minutes to one hour later, the scan is done.
- From these measurements a computer makes a picture and shows the concentration as different colors. The highest level of radioactivity shows up as white and is followed by red, yellow, green, and blue which is the lowest level of radioactivity.

USES

The SPECT Brain Scans give us a nuclear medical imaging procedure that provides images of cross sections of the brain. It helps your caregivers know what is wrong or what is going on.

This scan is different from the MRI and CAT Scans. Those scans show your anatomy (structure). This shows how your brain works inside your head. SPECT Brain Scans show what the blood flow is like to different areas of the brain. Because of this the scan is able to determine which cells are getting blood. SPECT Brain Scanning pinpoints the position of recoverable brain cells (referred to as Sleeping cells or Idling neurons or Ischemic Penumbra).

The role of this procedure is to evaluate memory loss and to diagnose Alzheimer's, neurodegenerative diseases, strokes and seizures. Brain SPECT scans may also be used to evaluate brain injury.

There are no post-exam instructions. But the patient may be asked to return for a comparison scan, called a Diamox brain SPECT scan, from two to 14 days after the first scan. Diamox is a drug that increases the blood flow to the brain. A comparison of the first baseline brain scan with a Diamox brain scan provides helpful information to your caregiver about the blood flow supply to the brain.

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