Understanding Brain Perfusion Scans

A brain perfusion scan is a type of brain test that shows the amount of blood in certain areas of your brain. This can help show how your brain is functioning. The areas of the brain that are very active often show greater blood supply, oxygen supply, and use of glucose. Tracking these changes can show which areas of your brain are most active. These results may be lower in areas of the brain that are injured or not very active.

Why a brain perfusion scan is done

You might need a brain perfusion scan if your healthcare provider needs to know how the blood is flowing in your brain. You may need a brain perfusion scan if you have one of these conditions:

- Epilepsy
- Dementia
- Stroke or transient ischemic attack (TIA)
- Subarachnoid hemorrhage
- Carotid stenosis
- Cerebral vasculitis
- Brain tumor
- Recent head injury

You also might need a scan if you need surgery on one of the vessels in your brain or neck. The scan will let your healthcare provider look at the flow of blood through your brain.

Types of brain perfusion scans

There are several types of brain perfusion scans. Some tests use radiotracers. These are radioactive substances that send out tiny particles. Tests that use these include SPECT and PET scans. Other tests don't use radiotracers. These include CT perfusion and MRI perfusion.

How a brain perfusion scan is done

You will lie on the exam table. A healthcare provider will give you the radiotracer. This is done through the IV (intravenous) line. It may take an hour or so for the radiotracer to travel through your body. You will rest quietly during this time. The provider will move you into the scanner for your imaging. You may be told to take a breath and hold it for a short period of time. You may have one or more different scans while you are inside the scanner.

Risks of a brain perfusion scan

All procedures have some risks. Possible risks of the scan include allergic reactions to substances used in the injection or slight pain at the injection site.

Some brain perfusion scans expose you to radiation. These are SPECT, PET, and CT scans. MRI scans don't use radiation. In high doses, radiation may increase your lifetime risk for cancer. But it’s important to note that these scans only use a small amount of radiation. Your healthcare provider will only tell you to get a brain perfusion scan if your risks from not getting the test are greater than the risks of the test itself.

Talk with your healthcare provider about the risks that apply most to you. Your risks may vary depending on the type of scan, the reason for your scan, and your overall health.