



## SPECIAL TESTS FOR STROKE PATIENTS

**CT scan.** Stands for "computed tomography." Sometimes called a CAT scan. The CT scan machine takes pictures of the brain using X rays. A CT scan is the best way to look for bleeding into or around the brain and should be done emergently in all possible stroke patients. There is no pain involved in having a CT scan.

**MRI scan.** Stands for "magnetic resonance imaging." MRI scan uses large magnets to take pictures of the brain. MRI is not as good as CT for seeing blood right away, but is better than CT for seeing ischemic (low-blood-flow) strokes and for seeing strokes in the lower part of the brain called the brainstem. There is no pain involved in having an MRI scan, but the patient must fit in a long tube, and the MRI machine often makes a loud, pounding noise. Patients who are afraid of closed spaces may require sedation before having an MRI. Those who are too heavy or whose shoulders are too broad cannot undergo MRI. It is best for the patient to close his or her eyes during an MRI scan in order not to suffer from the "closed in" feeling.

**MRA.** Stands for "magnetic resonance arteriography" (or "angiography"). To the patient, MRA is the same as MRI. The only difference is that the technician changes the dials and buttons on the MRI machine so that pictures are taken of the brain arteries rather than the brain itself.

**Carotid duplex.** Also called carotid "ultrasound" or "Doppler." In this painless test, a technician rubs jelly and a probe over the patient's neck, using sound waves to take pictures of the two carotid arteries. The carotid arteries are the pulses in the neck. They are the two main arteries that supply blood to the front and top of the brain.

**Transcranial Doppler.** This ultrasound test is like the carotid duplex, except the technician rubs the jelly and probe over the skull, using sound waves to look at arteries inside the head.

**Transthoracic echocardiogram.** This ultrasound test is sometimes just called an "echo." It is similar to the carotid duplex and transcranial Doppler, except that a technician rubs the jelly and probe on the patient's chest, using sound waves to take pictures of the heart.

**Transesophageal echocardiogram.** Sometimes called a "TEE." In this test, a heart doctor gives the patient a mild sedative, numbs the back of the patient's throat with a spray, and puts a tube down the patient's throat and halfway down the food pipe (esophagus). At the end of the tube is a probe that uses sound waves to look at the heart (just like in the regular echo). The TEE is better than the regular echo at looking for blood clots in the heart. There is usually only mild discomfort with a TEE, especially sore throat for one to two days afterwards.

**Cerebral angiogram.** Sometimes called cerebral "angiography" or "arteriogram." This is the best test for looking at the arteries in the neck and head that supply the brain with blood. In this test, the patient goes to a special room where x-ray doctors (radiologists) put cold soap on the patient's groin (usually the right groin), then use a small needle to numb the groin, then put a thin tube (called a "catheter") into the artery in the groin. The doctors run the tube up the patient's arteries to the arteries of the brain, then inject dye (called "contrast") into the arteries and take X rays of the arteries to look for blockages, narrowings, or disease of the arteries. This test has rare complications that can be severe such as stroke or death. The risk of complications goes up if the patient is very old, has diabetes mellitus, or has kidney disease.