Magnetic resonance imaging (MRI) or magnetic resonance angiography (MRA) are non-invasive methods of imaging internal organs, using radiofrequency waves and magnetic fields -- no X-ray radiation is involved and no iodine-containing contrast is used -- especially important for patients who have renal (kidney) disease and who may be negatively affected by the contrast used in standard or CT angiography.

MRI and MRA have limitations, however, in that highly detailed views of the coronary arteries may be better imaged using MultiSlice CT angiography or cardiac catheterization.

While the use of MRI scans in cardiac applications requires an operator specifically trained in these uses, the technology is rapidly evolving and offers many benefits with minimal impact on the patient. Many experts in the field of cardiac imaging feel that MRI technology will become the primary tool for cardiologists in the future.

The original MRI units required the patient to lie still inside of a narrow "closed" environment. Due to the claustrophobic nature of this test and discomfort of patients, manufacturers designed an "open" system as well.

The test takes about 30-45 minutes and, since there is no radiation, a family member or friend may be in the room with the patient.

MRI or MRA can provide significant information about the presence or absence of coronary artery disease with very minimal impact on the patient and no radiation exposure, although it may not image the coronary arteries as precisely as the equally non-invasive MSCT angiogram.

**Who Does the Procedure:** MRI or MRA procedures are evaluated similarly to the MSCT, by a radiologist or cardiologist trained in this modality. A technologist usually performs the actual procedure.

**Patient Preparation:** Since MRI affect metals, if you have had any metallic implants (pacemakers, stents, surgical pins, etc.) or any metal in your body, you should let your physician know (although stents have been cleared for MRI immediately after placement). If you are pregnant, let the technologist know.

**photo courtesy of Toshiba America Medical Systems**