RSNA® Radiological Society of North America

820 Jorie Blvd
Oak Brook, IL 60523
TEL 1-630-571-2670
FAX 1-630-571-7837
RSNA.org

NEWS

RSNA Press Release

MR Angiography Highly Accurate in Detecting Blocked Arteries

Released: January 30, 2007

Media Contacts:

RSNA Media Relations: (630) 590-7762

Maureen Morley
(630) 590-7754
mmorley@rsna.org

At A Glance

- Contrast-enhanced magnetic resonance (MR) angiography produces high-resolution images of the arteries that supply blood to the brain.
- MR angiography accurately identifies narrowing or blockage of the supra-aortic arteries without exposing the patient to radiation.
- Narrowing or blockage of the supra-aortic arteries is a leading cause of stroke.

OAK BROOK, Ill. - A novel type of contrast-enhanced magnetic resonance (MR) angiography is highly accurate in identifying blockages in the arteries that carry blood to the brain, according to a study in the February issue of *Radiology*.

"Contrast-enhanced MR angiography provided highly accurate information about the supra-aortic arteries," said Kambiz Nael, M.D., research fellow and radiology resident at the David Geffen School of Medicine at UCLA in Los Angeles. "MR angiography produced results comparable to the gold standard of digital subtraction angiography (DSA) and multidetector computed tomography (CT) angiography. In addition, this technology produced images with higher resolution over a larger field of view in a shorter amount of time than previous contrast-enhanced MR angiography techniques," he said.

Arterial occlusive disease consists of narrowed or blocked arteries. It commonly affects the supra-aortic arteries, which supply blood to the brain, and is a leading cause of stroke. Currently DSA is the reference standard for evaluating these arteries. However, in 2.5 percent of cases DSA can cause a mini-stroke, and, in rare instances, permanent neurological damage. Therefore, CT and MR angiography are increasingly being used to diagnose arterial occlusive disease. As technology has improved, MR angiography offers advantages over CT, particularly because it delivers no ionizing radiation to the patient.

"MR angiography, using a small quantity of MRI dye injected into a vein in the arm, can produce detailed images of the arteries supplying the brain and can detect even minor degrees of narrowing or blockage. It does not involve exposure to x-rays and is widely regarded as a very safe, painless test," Dr. Nael said.

The researchers studied 80 patients (44 men and 36 women) with suspected arterial occlusive disease to compare the performance of contrast-enhanced MR angiography to

Copyright © 2014 Radiological Society of North America (RSNA)

DSA and CT angiography. Two independent readers evaluated the images. Blockages were detected with MR angiography in 208 (reader 1) and 218 (reader 2) segments of artery, which correlated significantly to the DSA and CT findings. In addition, MR angiography proved highly accurate (94 to 100 percent) for detecting blockages of over 50 percent, and image quality was rated sufficient to excellent for 97 percent of the arterial segments evaluated.

"This procedure should be highly cost effective for clinical use, because of the speed and modest dose of contrast required," Dr. Nael said. "In the absence of contraindications to MRI, I would recommend MR angiography over DSA and CTA for routine use-avoiding increased risk of mini-stroke and radiation exposure."

Dr. Nael predicts that in most cases, contrast-enhanced MR angiography could replace other diagnostic techniques for evaluation of all the arteries that supply blood to the brain.

"As the technology evolves, MR angiography will likely become even faster and more powerful," he said.

# # #

Journal attribution required.

Radiology is a monthly scientific journal devoted to clinical radiology and allied sciences. The journal is edited by Anthony V. Proto, M.D., School of Medicine, Virginia Commonwealth University, Richmond, Va. *Radiology* is owned and published by the Radiological Society of North America, Inc. (radiology.rsna.org)

The Radiological Society of North America (RSNA) is an association of more than 40,000 radiologists, radiation oncologists, medical physicists and related scientists committed to promoting excellence in radiology through education and by fostering research, with the ultimate goal of improving patient care. The Society is based in Oak Brook, Ill. (RSNA.org)

"MR Angiography of Supraaortic Arteries." Collaborating with Dr. Nael were J. Pablo Villablanca, M.D., Whitney B. Pope, M.D., Ph.D., Thomas O. McNamara, M.D., Gerhard Laub, Ph.D., and J. Paul Finn, M.D.

Copyright © 2014 Radiological Society of North America (RSNA)