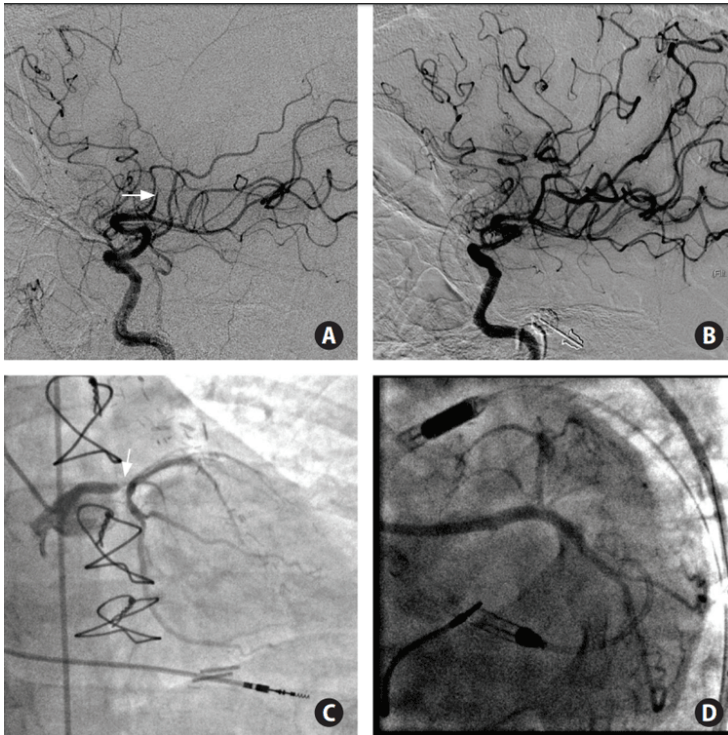


UM Doctors Find Faster Way to Treat Rare Strokes During Heart Procedure

More than 1 million Americans undergo cardiac catheterizations each year. These procedures, which involve threading a thin, flexible tube called a catheter through a blood vessel to the heart to diagnose or treat cardiac problems, are considered very safe. However, rarely, patients experience a stroke during the catheterization.

Strokes resulting from a blockage in a large blood vessel in the brain are known as ischemic strokes and are the most common type. They cause brain cells to die, and can lead to permanent disabilities, including paralysis or trouble speaking.



The image in panel A shows the blocked cerebral artery (arrow) and panel B shows the opened cerebral artery with all its branches filled. Panels C and D show the coronary arteries during the catheterization and stenting procedure.

Historically, when doctors have identified stroke symptoms in cardiac catheterization patients, they've performed a head CT scan to confirm the suspected stroke was caused by a blockage rather than a ruptured blood vessel – something that takes time.

But a small study led by University of Miami Health System physicians suggests CT may be unnecessary when a blockage is confirmed during cerebral angiography – a test that uses a

special dye delivered via a catheter to track blood flow in the brain.

Their finding could help patients be treated more quickly with mechanical thrombectomy, the standard-of-care for large vessel brain blockages. It involves removing the blockage with a special tool passed to the brain through a catheter.

The paper, titled *“Direct” Mechanical Thrombectomy in Acute Ischemic Stroke during Percutaneous Coronary Intervention*, was [published](#) in the Journal of Stroke.

The sooner stroke patients are treated, the lower their risk for serious complications.

“Every minute, we lose about 2 million neurons due to lack of blood flow during an ischemic stroke,” said Dileep R. Yavagal, M.D., professor of clinical neurology and neurosurgery, chief of interventional neurology, and co-director of endovascular neurosurgery at the University of Miami Miller School of Medicine and UM/Jackson Memorial Hospital. “If you save an hour of time, that’s a lot of brain tissue that’s saved.”

Dr. Yavagal and Mauricio G. Cohen, M.D., an interventional cardiologist, professor of medicine, and director of the cardiac catheterization laboratory at University of Miami Hospital and Clinics, collaborated to determine if cerebral angiography alone, without CT, could safely identify stroke.

They looked at four consecutive patients who developed stroke symptoms while undergoing emergency cardiac catheterization procedures between January 2016 and June 2017. All were women, between 50 and 70 years of age. Three were being treated for

heart attack and the fourth for unstable angina, a condition in which the heart doesn't get enough blood.

Each patient had a cerebral angiogram in the catheterization lab using the same vascular access site used for their cardiac catheterization. The test confirmed ischemic stroke in three of the four subjects. They went on to have successful mechanical thrombectomy and significant improvement in National Institutes of Health Stroke Scale scores two hours after their procedure. This score offers an indication of the patient's impairment.

All subjects had a head CT to check for brain bleeding within 24 hours of their mechanical thrombectomy, but none was found. No stroke was identified in the fourth subject. She had rapid symptom improvement, suggesting spontaneous improvement or that she didn't have an ischemic stroke. Immediate head CT found no bleeding.

"Stroke is a devastating, catastrophic complication of cardiac catheterization and interventional procedures," said Dr. Cohen. "The frequency of occurrence is very low – a fraction of 1%. However, it is important to have a plan when these unfortunate events occur."

When a cerebral angiogram identifies a brain blockage in a cardiac catheterization patient, it's very unlikely they have any bleeding, said Dr. Yavagal. Additional research is needed to confirm the UM findings. But the current study indicates skipping CT and performing mechanical thrombectomy directly after angiogram is safe and can save time.

