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# A New Approach to Stroke Prevention

By Sean O'Donnell, MD, and Brijesh Mehta, MD



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## **Brijesh Mehta, MD**

Collaboration among physicians with differing expertise in a multi-disciplinary approach to care, and ensuring the optimal treatment for specific conditions, is one of the most gratifying aspects of medicine. That was certainly the case when a new procedure being done within Memorial Healthcare System brought together vascular and neurointerventional surgical teams to reduce a patient's risk of stroke.

### **Probable Cause**

Strokes are both cardiovascular and neurological incidents, occurring when the blood supply from the heart to the brain is interrupted or reduced. This deprives the brain of oxygen and nutrients and causes cells to die. Stroke is the 5th leading cause of death in the U.S. and more than 15 million people worldwide are affected by strokes each year, with many passing away or becoming permanently disabled.

While there are several potential causes for a stroke, it's estimated that nearly a third are brought on by carotid artery disease, a buildup of plaque in one or both of the arteries in the neck that can affect the flow of blood to the brain. When portions of plaque from a diseased carotid artery travels to a small artery in the brain, blood flow is interrupted and a stroke occurs.

### **Latest Technology**

"TCAR," short for TransCarotid Artery Revascularization, is an option for patients with severe plaque buildup that are beyond the point where medication or lifestyle changes will help. In

these situations, where the risk of stroke is significant, the traditional approach would be carotid endarterectomy (CEA) surgery, an open surgical procedure to unblock arteries. Some patients, however, may not be candidates for this surgery, either because of age, anatomic issues, heart disease, or other comorbidities. Additionally, as with any invasive procedure, the patient's recovery period is longer and more arduous than those whose repairs are done with less invasive methods.

TCAR, a procedure pioneered by Silk Road Medical, which Memorial recently became the first in Broward County to perform, also involves direct access to the carotid artery, but through a much smaller incision at the base of the neck, just above the clavicle. During the procedure, a tube inserted into the artery is connected to a system that temporarily reverses blood flow, directing it away from the brain and keeping dangerous plaque debris from flowing in that direction. While the brain still receives blood through other arteries, surgeons filter the blood from the carotid artery and implant a stent to open the narrowed artery and prevent future strokes. Blood is returned from a tube connected to the carotid artery, passes through a filter, and returns from the other end of the tube into a vein in the groin, with the normal direction of flow resumed following the procedure. When compared to CEA, there is less stress on the heart and the risk of the patient having a stroke or heart attack during the process is significantly decreased.

### **First Patient**

Following a review of clinical information and imaging studies by vascular and neurointerventional teams, we performed our first TCAR procedure on Reynold, an 81-year-old man with advanced coronary disease. He had an almost completely blocked carotid artery and was somewhat fortunate to have not already had a stroke by the time he came to the Memorial Cardiac & Vascular Institute. Because of his age and a recent bout with

COVID-19, he was not a realistic candidate for CEA.

Following the procedure, the patient spent just one night at the hospital for observation and was walking immediately after. He reported feeling “like a new man” and is now taking nothing stronger than aspirin as a blood thinner and a cholesterol-lowering medication to help prevent future issues.

While CEA is recognized as a safe, effective surgery, it’s still a fairly major operation that takes time and usually requires general anesthesia. We’ve found TCAR to be an important, new option in the fight against strokes that is particularly suited for patients like Reynold that are at higher risk of complications from the traditional treatment of carotid artery disease.

*Dr. Sean O’Donnell is a vascular surgeon and the medical director of Vascular and Endovascular Surgery at Memorial Cardiac & Vascular Institute. Dr. Brijesh Mehta is a neurointerventional surgeon and medical director of the Comprehensive Stroke Program and Neurointerventional Surgery at Memorial Neuroscience Institute. For more information about Memorial Healthcare System, visit [www.mhs.net](http://www.mhs.net).*

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