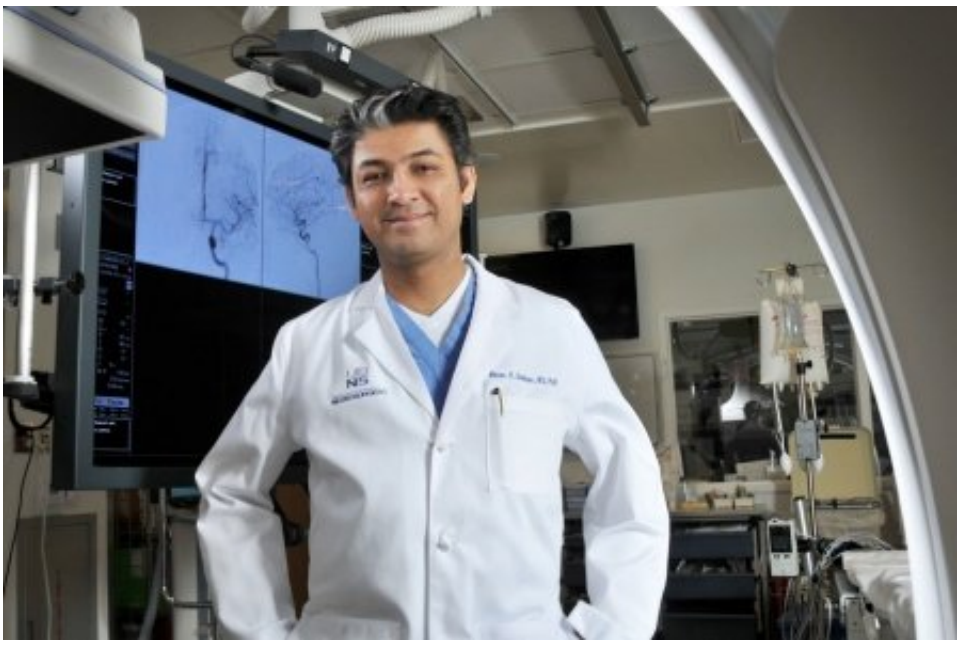
Aspiration-based thrombectomy works as well as thrombectomy with stent retriever for large vessel occlusion

January 3 2018, by Ellen Goldbaum



Credit: University at Buffalo

A research team at the Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo has found that in stroke patients with large vessel occlusion (LVO), the removal of the clot occurs as efficiently after aspiration-based clot removal alone as it does after aspiration-based clot removal performed with a stent retriever. The safety measures and good clinical outcomes produced by both methods,

including the incidence of serious, device-related adverse events, were also comparable.

The findings, published today online before print in *JAMA Neurology*, demonstrate that in many cases of LVO, among the most severe types of stroke, the use of a stent retriever may not always be necessary.

"Our study has found that these two strategies—stent retrieval of the clot versus aspiration of the clot as an initial step—are equivalent in terms of their ability to efficiently achieve recanalization, the restoration of blood flow, and they produce equally successful clinical outcomes," said Adnan Siddiqui, MD, vice chair and professor in the Department of Neurosurgery in the Jacobs School and first author on the paper. Elad Levy, MD, L. Nelson Hopkins III Professor of Neurosurgery and chair of the Department of Neurosurgery, is a first co-author. They see patients at UBMD Neurosurgery.

The national study was conducted at 25 sites, including Kaleida Health's Gates Vascular Institute (GVI) where Siddiqui and Levy lead the internationally renowned stroke program. The study enrolled 198 patients of both genders after screening more than 8,000 patients.

Inspired by L. Nelson Hopkins, founder of the Jacobs Institute and SUNY Distinguished Professor of Neurosurgery in the Jacobs School, and former chair of the department, Siddiqui and Levy have pioneered numerous advances that have changed the standard of care for stroke patients around the world. They led the SWIFT PRIME clinical trial that found in 2015 that when used together with conventional clot-busting drugs, wire mesh stent devices produced much better clinical outcomes than the drugs alone.

"Stent retriever devices, which capture the clot in a wire mesh, were used in the majority of cases in the seven major trials in 2015 –

including SWIFT PRIME – that demonstrated unequivocally that mechanical removal of a clot is superior to medical therapy for acute ischemic stroke caused by large vessel occlusion," Siddiqui explained. "However, high volume centers such as ours had started to employ large bore aspiration catheters for clot removal as a first pass technique prior to using stent retrievers. This is the first randomized trial in the U.S. comparing these two strategies with a novel stent retriever to test if these two strategies are comparable to each other."

Instead of mechanically removing the clot by catching it in the wire mesh cage of the stent retriever, aspiration involves threading a catheter into the brain that then attempts to remove the clot through suction alone.

The technique is considered less risky than stent retrievers because the clot typically does not need to be traversed and the catheters are positioned in parts of the blood vessel that are still open and therefore visible. The use of aspiration first also has an additional economic advantage, Siddiqui noted.

At Kaleida, Siddiqui and Levy have seen the benefits of using aspiration alone in their own patients, where they have been using the technique since 2012.

"Our findings were certainly not surprising for us, but they may surprise some in the larger community where not using a stent retriever has been considered heresy," Siddiqui said. "We now have level one evidence showing that both of these strategies are equally effective."

Provided by University at Buffalo