MedicalXpress

Analysis shows benefits of endovascular therapy for severe stroke

February 17 2015, by Keith Herrell

A pooled analysis of two recent clinical trials involving the use of devices to treat stroke-causing blood clots indicates that patients with the most severe strokes stand to benefit the most, new research presented by a University of Cincinnati (UC) neurologist indicates.

The research was presented Thursday, Feb. 12, at the American Heart Association/American Stroke Association (AHA/ASA) International Stroke Conference 2015 in Nashville, Tennessee. Joseph Broderick, MD, a professor in the UC Department of Neurology and Rehabilitation Medicine and director of the UC Neuroscience Institute, a partnership of the UC College of Medicine and UC Health, made the presentation.

"Our pooled data, as well as other reported trials, call for thoughtful consideration of current triage for patients who present with severe stroke and who are candidates for endovascular therapy within a given region of the brain," says Broderick.

Broderick and colleagues from UC and the Netherlands looked at two trials of devices or medication within the brain arteries used to treat ischemic stroke-causing blood clots (known as endovascular or intra-arterial therapy):

- The International management of Stroke (IMS) III Trial, begun in 2006 and funded by the National Institute of Neurological Disorders and Stroke (NINDS), part of the National Institutes of Health (NIH). UC was the coordinating center for the trial, with

Broderick as principal investigator and Thomas Tomsick, MD, professor of radiology and director of neuroradiology at UC, as principal neuro-interventionist.

- The Multicenter Randomized Clinical Trial of Endovascular Treatment for Acute Ischemic Stroke in the Netherlands (MR CLEAN), led by Diederik Dippel, MD, PhD, senior consultant in the neurology department at the Erasmus Medical Center in Rotterdam, the Netherlands.

In May 2012, NINDS announced that it was stopping the IMS III trial because an interim analysis indicated that the combination approach of the standard FDA-approved intravenous (IV) treatment of tissue plasminogen activator (tPA) alone and endovascular therapy using either tPA delivered directly into the artery at the site of the clot or an FDA-approved device to remove the clot was unlikely to demonstrate the desired minimum 10 percent benefit even if the study completed the projected full enrollment of 900 patients. (It had enrolled 656 adult patients at 58 centers in North America, Europe and Australia by the time it was stopped.) However, subgroup analyses of the trial suggested benefit for certain subgroups, including those with severe stroke at baseline.

MR CLEAN results presented in October 2014 at the 9th World Stroke Congress in Istanbul, Turkey, showed that patients with clot-caused strokes benefit when they receive treatment with devices that mechanically remove blood clots from within the blocked artery after standard treatment, including treatment with IV tPA.

Broderick says the pooled analysis, planned prior to the unblinding of the MR CLEAN Trial results and begun after publication of the MR CLEAN study in December, showed that for patients with severe stroke (equal to or higher than 20 on the NIH Stroke Scale), endovascular therapy after IV tPA improved functional outcome at 90 days in about

one in four patients as compared with IV tPA alone (about one in 10), with no increase in mortality.

In the IMS subgroup with an NIH Stroke Scale score equal or higher than 20, IV tPA alone was associated with improvement in about one-third of patients during the first 40 minutes after being administered.

"For patients with severe stroke with a major arterial occlusion, endovascular therapy after IV tPA improves outcome and should be considered a new standard of care," Broderick says. "Our pooled data, as well as other reported trials at the International Stroke Conference this week, call for thoughtful consideration of current triage for patients who present with severe stroke and who are candidates for endovascular therapy within a given region."

Provided by University of Cincinnati