

Study finds no significant differences between commonly used carotid stenting systems in US

January 17 2014, by Jessica Mikulski

(Medical Xpress)—A study conducted by researchers from several institutions, including the Perelman School of Medicine at the University of Pennsylvania, has found similarly low rates of complication and death among U.S. patients who are treated with the three most common systems for placing stents in blocked carotid arteries of the neck.

The study, published online this week by *JACC: Cardiovascular Interventions*, is the first true comparative effectiveness analysis of [carotid](#) stenting platforms. Extensive similar work has been performed with coronary stents but no one has previously attempted to clarify these issues in carotid artery disease.

"We found low rates of in-hospital death and stroke with carotid stenting regardless of the devices used: on the order of two percent," said lead author Jay Giri, MD, MPH, assistant professor of Clinical Medicine at Penn. "A tremendous amount of time and energy has been spent theorizing about various technical considerations of carotid stenting systems that might make one superior to another. Our study effectively argues that continued focus on these specific technical aspects is unlikely to significantly improve stroke and death rates around carotid stenting. The bottom line is that our finding should provide support for operators to use their judgment to select the stent most favorable for a particular anatomic or clinical situation."

The study analyzed 12,135 consecutive carotid stent procedures in the National Cardiovascular Data Registry performed between January, 2007 and March, 2012. The Penn researchers compared rates of in-hospital combined death/stroke among patients treated with the three most commonly used carotid stenting systems in this country. (An embolic protection device is a small filter that helps prevent strokes by catching the clots or debris that may break away from the plaque during the procedure.) Until this study, little was known about current usage patterns and differences in outcomes with these devices.

During carotid artery stenting an interventional cardiologist or vascular surgeon inserts a slender, metal-mesh tube, called a stent, which expands inside a patient's [carotid artery](#) to increase blood flow in areas blocked by plaque.

Hardening of the arteries, also known as atherosclerosis, can cause a build-up of plaque. This can occur as a result of the aging process and dietary and exercise patterns. As plaque accumulates, arteries can narrow and stiffen. Eventually, enough plaque may build up to reduce blood flow through the arteries, or cause blood clots or pieces of plaque to break free and block the arteries in the brain beyond the plaque. This may result in stroke or death if untreated.

The study also found that in nearly 80 percent of the cases examined, physicians paired stents with the corresponding embolic protection device produced by the stent manufacturer. "We wanted to find out whether physicians were mixing and matching stents and embolic protection devices from different companies during carotid stenting.. In other types of non-carotid stenting, doctors often mix and match products from different companies." said Giri. "With carotids, by and large, they don't. They use companion stents and embolic protection devices from one company."

There are several factors that may influence this pattern of use. First, the FDA approves [carotid stenting](#) systems as a unit of stent and embolic protection device. Operators may be more comfortable using an FDA-approved unit rather than "mixing and matching" [stents](#) with other embolic protection devices. Additionally, reimbursement restrictions from CMS likely have a large impact on this usage pattern.

More information: Giri J, Kennedy KF, Weinberg I, et al. "Comparative Effectiveness of Commonly Used Devices for Carotid Artery Stenting: An NCDR (National Cardiovascular Data Registry) Analysis." *J Am Coll Cardiol Interv.* 2014. [DOI: 10.1016/j.jcin.2013.10.014.](#)

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