Carotid stenting, filter debris and better patient selection


CHICAGO, Illinois, July 2018 – A unique study from Padua University in Italy suggests that there is a relationship between filter debris load and complications during carotid artery stenting in asymptomatic patients.

It is well known that treatment of carotid disease is effective in reducing morbidity and mortality from stroke, and carotid artery stenting has become an important especially for patients for whom surgery is risky. Despite cerebral protection, however, arterial embolism to the brain remains the Achilles’ heel of this approach.

Stroke ranks fifth among all causes of death in the United States, killing nearly 133,000 people yearly, and ranks second worldwide, behind heart disease. Further, stroke is the leading cause of serious, long-term disability.

As reported in the July 2018 edition of the Journal of Vascular Surgery, researchers from Padua University, led by vascular surgeon Dr. Michele Piazza, have better defined pre-operative risk factors for clinically significant embolic events during carotid stenting. They retrospectively studied 278 of their own patients undergoing CAS for asymptomatic, >70% stenosis between 2008 and 2016. A distal filter protection device was used in all patients, and all filters were fixed in formalin and analyzed for the area covered by particulate matter. The researchers then correlated the findings with peri-procedural outcomes.

Following 278 CAS procedures for asymptomatic disease (>70%), periprocedural events included:

- Stroke = 1.8% (major 0.4%, minor 1.4%)
- Transient ischemic attack = 5%
- Mortality = 0
- Myocardial infarction = 0.4%

Embolic filter debris was found in 74% of cases, with mean filter coverage of 10%. Patients with a neurological event had a mean of 27% compared with 9% for those who did not have a peri-procedural event.

Risk factors for significant embolic filter debris included:
- Age >75 years
- Prior ipsilateral cerebral lesion identified by CT scan
• Hypoechoic plaque
• Lesion length >15mm

“Our objective was to identify a valid relation between debris quantity and clinical relevance. This became significant once the amount of debris covered >12.5% of the filter surface,” states Dr. Piazza. “This is important because it may help identify those carotid plaques associated with a higher risk of embolization during the procedure, leading to a better selection of patients who may truly benefit from carotid artery stenting.”

Dr. Piazza notes that “a limitation of this study is that evaluation of material within the protection device does not take into account all maneuvers on the aortic arch and plaque that are performed before deployment of the device.”

Further individualization of therapy based on pre-operative characteristics is critical for success in our efforts to prevent stroke.

To download the complete article (link available through Aug. 31, click: vsweb.org/JVS-CAS).

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