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Miller School Researcher Study on Internal Carotid Artery Stenosis Published in Vascular Medicine

The *Vascular Medicine* journal published research on the multi-centered study of duplex ultrasound for the diagnosis of internal carotid artery stenosis with Intersocietal Accreditation Commission researchers, including Tatjana Rundek, M.D., Ph.D., professor of neurology, and Evelyn F. McKnight Chair for Learning and Memory in Aging at the University of Miami Miller School of Medicine.

Tatjana Rundek, M.D., Ph.D.

Along from Dr. Rundek, who also serves as the scientific director of the Evelyn F. McKnight Brain Institute and president of the IAC Vascular Testing board, the study includes lead investigator Heather L. Gornik, M.D., IAC Vascular Testing immediate past president.

The study was developed in response to the wide variability in the diagnostic criteria used to classify the severity of ICA stenosis across vascular laboratories nationwide and following

a survey of members of IAC-accredited facilities supporting efforts toward standardization. The study's primary objective was to evaluate widely used SRU Consensus Criteria and, if needed, propose further optimization to these criteria.

Using Real-World Data

"Through its use of real-world data from IAC-accredited vascular laboratories, this paper highlights the opportunity to improve the quality of care for patients with carotid disease," Dr. Rundek said. "By modifying existing criteria to incorporate more accurate parameters and implementing these criteria broadly, the accuracy of diagnostic ultrasound testing can be improved across our vascular community."

Researchers found that carotid duplex interpretation using SRUCC produced significant overestimation of stenosis for both moderate (50–69%) and severe (> 70%) ICA lesions as determined by catheter angiography.

The authors concluded that laboratories currently using SRUCC should consider modification of existing criteria to incorporate more stringent and accurate parameters for ICA stenosis greater than 50% by increasing the peak systolic velocity (PSV) threshold to > 180 cm/sec or requiring the ICA/CCA PSV ratio > 2.0 in addition to PSV of > 125 cm/sec.

"This study reflects more than six years of work of a team of IAC staff and multi-specialty volunteers with case study materials collected from 11 centers nationwide," Dr. Gornik said. "While the SRUCC are broadly used, they had never been formally compared to the gold standard of catheter angiography. We have shown that use of SRUCC overestimated the

degree of ICA stenosis and identified potential opportunities for modifications that can ultimately enable greater accuracy and consistency in ICA interpretation across vascular laboratories."

A Valuable Study

One of the IAC staff members, Hannah Gardener, Ph.D., associate scientist at the Miller School, further credits the study for its representation and worthwhile labor of time.

"This valuable study represents a long-term multi-institutional collaborative effort to refine ultrasound diagnostic criteria and strengthen and standardize evidence-based care for carotid artery disease," Dr. Gardener said.

As a next step, IAC Vascular Testing will disseminate a white-paper document summarizing the study results and providing guidance to vascular laboratories for implementing criteria and further measures toward standardization across the vascular testing community.

"This was a much-needed study and long overdue," said Sebastian Koch, M.D., professor of neurology and director of the Ceserano Neurovascular Ultrasound Laboratory in the Department of Neurology at the Miller School. "Hats off to the tremendous effort from all the investigators."

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