3-D CT Angiography Can Mean Change of Plans

BY MITCHEL L. ZOLER
Philadelphia Bureau

PHILADELPHIA — Screening patients scheduled to undergo carotid artery stenting by three-dimensional CT angiography led to a change in the planned procedure in 37% of patients in a pilot study with a total of 59 patients.

Screening with computed tomography angiography provides a standardized view of the patient's vascular anatomy and allows exclusion of patients who have clear anatomic contraindications, Dr. Mark C. Wyers said at the Vascular Annual Meeting, sponsored by the Society for Vascular Surgery.

Further study of this screening method is warranted to assess its impact on stroke rates and its cost effectiveness, added Dr. Wyers, a vascular surgeon at Dartmouth-Hitchcock Medical Center in Lebanon, N.H.

"We need to do a better job in selecting patients for carotid artery stenting in order to improve our results," he said. The anatomic assessments that have been used until now, most often Doppler ultrasound or conventional arteriography, have not provided adequate guidance for patient selection.

The imaging method tested was an orthogonal three-dimensional reconstruction of angiography data collected by CT, using the technique developed for imaging abdominal aortic aneurysms. This imaging was used at the discretion of the carotid stenting operators at Dartmouth-Hitchcock on 59 patients during a 3-year period.

During the same time, another 51 patients underwent carotid artery stenting without first undergoing imaging by CT angiography.

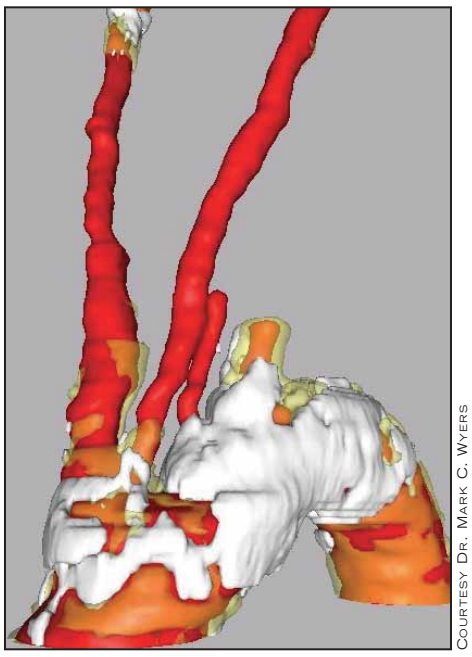
Of the 59 patients reviewed with CT angiography, 37 were approved for carotid stenting. Another 15 of the imaged patients were judged unsuitable for stenting based on the anatomy of their carotid arteries and other vessels, and 5 were considered to have anatomy with borderline suitability. In four of those five borderline patients, the procedure was not attempted, and in one patient, it was attempted but failed.

CT angiography provides a standardized view of vascular anatomy and allows exclusion of patients who have clear anatomic contraindications.

The number of patients who underwent stenting in the entire series was small (37 who were screened and 51 who weren't screened, for a total group of 88 patients), which makes comparisons between the two subgroups difficult.

The technical success rate of carotid stenting was 100% in the patients who were screened and 98% in those who weren't. The rate of unplanned or nonstandard maneuvers during stenting was 5% (two patients) in the screened subgroup and 12% (six patients) among those who weren't screened.

Screening not only appeared to help operators anticipate potential problems,it also reduced the need to make treatment decisions on the fly and helped reduce the tendency of some physicians to forge ahead with stenting in patients who have suboptimal vascular anatomy, Dr. Wyers said. ■



COURTESY DR. MARK C. WYERS

A 3-D CT angiogram reveals a heavily diseased aortic arch and carotid artery. The technique may help in appropriate patient selection.