

STROKE

Presence of large-vessel occlusion predicts outcome for stroke patients

Large-vessel occlusion occurs in nearly half of all stroke cases and carries a worse prognosis than stroke without large vessel-occlusion. Wade Smith from the University of California, San Francisco, who led the research, reports that “the finding of a large vessel occlusion alone increased the odds of dying by 4.5 times, and the absence of this finding increased the odds of a good outcome by 3 times.” The team also found that, independent of other variable prognostic factors, imaging alone can greatly inform the treating physicians about patient prognosis.

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The Screening Technology and Outcome Project in stroke (STOP) study investigated the incidence of large-vessel occlusion in cases of stroke and to report the prognosis of these patients at 6 months. This study was carried out as a result of a previous report by Smith et al. that found large-vessel occlusion in nearly 50% of patients with acute stroke.

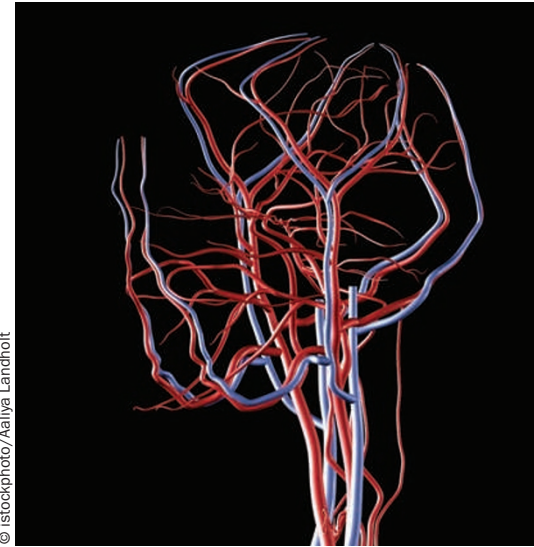
The investigators performed CT, CT angiography (CTA) and CT perfusion on 675 patients with stroke (578 patients)

or transient ischemic attack (TIA; 97 patients) presenting within 24 h of symptom onset to emergency departments at the Massachusetts General Hospital and University of California, San Francisco Medical Center.

In total, 46% of patients with acute stroke or TIA had an acute occlusion of a large intracranial artery. Smith explains that this finding is important, as patients with this form of stroke are now increasingly being treated with endovascular techniques. The presence of large-vessel occlusion was associated with increased odds of mortality and reduced odds of a good outcome at 6 months after the stroke or TIA. Multivariate modeling revealed that the presence of a carotid terminus or basilar occlusion was an independent predictor of outcome, adding to prior knowledge that age and baseline stroke severity predicts outcome.

Angiographic imaging seems to offer useful information— independent of age and the NIH Stroke Scale—about patient prognosis to the treating physician. “CTA is a noninvasive method to delineate the location of any large-vessel occlusion within the brain during stroke and is much more feasible than conventional angiography,” Smith comments.

The researchers believe that CT perfusion data may have more



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relevance for clinical outcome than the CTA findings alone, and, therefore, plan to further analyze that information. “We also plan to analyze the cost-effectiveness of performing multimodality imaging—CT, CTA, CT perfusion—on acute stroke and TIA patients,” Smith concludes.

Lisa Richards

Original article Smith, W. S. *et al.* Significance of large vessel intracranial occlusion causing acute ischemic stroke and TIA. *Stroke* doi:10.1161/STROKEAHA.109.561787