Intracranial Atherosclerosis Tied to Fatal Ischemic Stroke

BY DIANA MAHONEY
New England Bureau

BOSTON — Intracranial plaques and stenoses are highly prevalent in fatal ischemic stroke patients, according to the results of a study presented at the annual meeting of the American Academy of Neurology.

The findings suggest that intracranial atherosclerosis might not be as rare a condition as previously believed and that intracranial stenoses in particular might be the cause of fatal brain infarction in many cases, according to Dr. Mikael Mazighi of the Hôpital Lariboisière in Paris.

Dr. Mazighi and colleagues performed a systematic analysis of intracranial and extracranial arteries, the aortic arch, and the heart in 339 consecutive autopsies of ischemic stroke patients. The analysis also included clinical history, risk factors, imaging data, and general autopsy reports for each patient. The control group comprised hemorrhagic stroke patients.

The prevalence rates of intracranial plaques and stenoses in the brain infarction patients were significantly higher, at 62% and 42%, respectively, compared with 49% and 18% in patients with brain hemorrhage, Dr. Mazighi reported. Additionally, in more than 5% of the ischemic stroke victims with at least one stenosis of 30%-75%, the stenosis was considered the cause of the infarction, he said.

Diabetes and male gender were significantly associated with intracranial plaques and stenosis in multivariate analysis, said Dr. Mazighi. In addition, a history of previous myocardial infarction was significantly associated with intracranial plaques, and previous stroke was associated with intracranial stenosis, he said.

The high prevalence of the intracranial atherosclerotic findings and the apparent causal role of moderate stenoses in fatal ischemic stroke observed in this investigation suggest that the prevalence of intracranial atherosclerosis is likely underestimated, probably because of the lack of appropriate diagnostic procedures, said Dr. Mazighi. The frequency and role of intracranial artery plaques in stroke patients should be reevaluated using new intravital imaging techniques, he said. ■

Carotid Stenting May Lessen Ocular Ischemia, Restore Sight

BY JEFF EVANS
Senior Writer

WASHINGTON — Carotid artery stenting may provide a safe and effective means of restoring ocular blood circulation and improving the vision of patients with severe carotid stenosis, especially those with chronic ocular ischemic syndrome, Dr. Shoichiro Kawaguchi reported at the annual meeting of the American Association of Neurological Surgeons.

"It is well-known that severe internal carotid stenosis influences the flow dynamics of the ophthalmic artery in chronic ocular ischemic syndrome," said Dr. Kawaguchi of the department of neurosurgery at Nara (Japan) Medical University.

Of the 38 patients in the study with internal carotid artery stenosis of 80% or more, 9 had experienced clinical symptoms of a transient ischemic attack and 29 had reversible ischemic neurologic deficits. Eight of those with reversible ischemic neurologic deficits had chronic ocular ischemic syndrome.

Before undergoing carotid artery stenting (CAS), 13 patients exhibited a reversed flow pattern on ophthalmic artery color Doppler flow imaging, whereas the other 25 patients showed an arch stenosis (antegrade) flow pattern. At 24 hours after CAS, all patients had an antegrade flow pattern and a significant rise in mean peak systolic flow velocity in the ophthalmic artery from –0.038 m/sec before CAS to 0.36 m/sec afterward. All CAS procedures were performed on patients under general anesthesia more than 4 weeks after their last neurologic event.

There was no difference in the degree of carotid stenosis among patients with or without chronic ocular ischemic syndrome, but those with the syndrome had significant improvement in peak systolic flow velocity in the ophthalmic artery.

Measurements did not change significantly from 1 week to 3 months after CAS. Seven of the eight patients with chronic ocular ischemic syndrome improved their visual acuity during the mean follow-up of 2.8 years. ■

Poststroke VTE Risk Cut by 43% With Enoxaparin vs. Unfractionated Heparin

BY JANE SALODOF MACNEIL
Senior Editor

SAN FRANCISCO — Enoxaparin, a low-molecular-weight heparin, gave acute ischemic stroke patients significantly better protection against venous thromboembolism, compared with unfractionated heparin, in a large, open-label trial presented at the 32nd International Stroke Conference.

Venous thromboembolic (VTE) events occurred in 10.2% of 884 patients on enoxaparin prophylaxis, compared with 18.1% of 878 patients on unfractionated heparin, Dr. David G. Sherman reported. Enoxaparin reduced the relative risk of VTE by 43% in the trial, which randomized 1,762 patients who could not walk unassisted within 48 hours of acute ischemic stroke.

All subgroups benefited, including patients with more severe strokes and those who started prophylaxis more than 24 hours after their strokes, according to Dr. Sherman, a professor of medicine and chief of the division of neurology at the University of Texas Health Science Center in San Antonio. Compared with unfractionated heparin, enoxaparin reduced proximal deep vein thrombosis by 53%.

Sanofi-Aventis, which markets enoxaparin as the antithrombotic Lovenox, sponsored the Prevention of VTE After Acute Ischemic Stroke with Low-Molecular-Weight-Heparin Enoxaparin (PREVAIL) trial. Dr. Sherman is a consultant to and is on the speakers' bureau of the company.

Still to come is a thorough pharmacoeconomic analysis of enoxaparin prophylaxis. At a press briefing prior to the presentation, Dr. Sherman said the promised analysis would include indirect costs such as length of hospital stay as well as the price of the therapy.

Up to now, various stroke-care guidelines have called for VTE prophylaxis without specifying an agent or dose in the absence of large trials comparing agents, according to Dr. Sherman. PREVAIL gives physicians caring for paralyzed stroke patients "some guidance to direct them in making a decision on which anticoagulants to use," he said.

The trial "suggests that enoxaparin 40 mg once daily for up to 14 days could become the preferred treatment for VTE prophylaxis in acute ischemic stroke patients," he said in the conclusion of his presentation. He declined, however, to predict how standards-setting groups would react to PREVAIL.

The cost analysis could prove critical to how standards-setting groups view enoxaparin, according to Dr. Philip Gorelick, moderator of the press briefing. Despite its superiority in PREVAIL, he said in an interview that enoxaparin is an expensive drug that must compete with other stroke treatments as well as unfractionated heparin for health care dollars. "We have to see these data, because cost is very important," said Dr. Gorelick, John S. Garvin professor and head of the department of neurology and rehabilitation at Rush Medical College, Chicago. "The absolute numbers of people that could be affected by the results of this trial are huge," he added.

Patients in the study received either 40 mg of enoxaparin subcutaneously once a day or 5,000 IU of unfractionated heparin twice a day. Efficacy was based on whether patients had symptomatic or asymptomatic deep-vein thrombosis, symptomatic pulmonary embolism, or a fatal pulmonary embolism during 6-14 days of treatment. Both legs of asymptomatic patients were screened by venography.

Nearly two-thirds of patients in the trial started prophylaxis 24-48 hours after their strokes, but they had as much benefit as those who started sooner. "Even if we were not able to start in the first 24 hours, the treatment was effective," Dr. Sherman said.

Adverse events were similar in both arms of PREVAIL. Dr. Sherman reported that clinically significant bleeds occurred in 1.3% of patients on enoxaparin and 0.7% of those given unfractionated heparin. Treating 13 patients with enoxaparin could prevent one VTE, he said; treating 435 patients could lead to one important clinical bleeding event.

At the end of 90 days' follow-up, investigators found no significant differences in neurologic end points, he said. Stroke progression and modified Rankin Scale scores of less than 2 were seen, respectively, in about 5% of both groups. Strokes recurred in fewer than 2% of patients regardless of prophylaxis. ■

Microemboli After Carotid Interventions Associated With CAD

SCOTTSDALE, ARIZ. — Patients undergoing carotid endarterectomy or carotid angioplasty and stenting are more likely to experience microemboli if they have comorbid coronary artery disease, Dr. Maureen Tedesco said at an international congress on endovascular interventions sponsored by the Arizona Heart Institute.

Dr. Tedesco and her colleagues at Stanford (Calif.) University had previously shown a greater risk of microemboli with carotid angioplasty and stenting (CAS) than with carotid endarterectomy (CEA).

That link emerged again in her retrospective study of 64 consecutive carotid patients. Based on diffusion-weighted MRI images read by two blinded neuroradiologists, 24 (71%) of 34 CAS patients experienced new microemboli compared with 1 (3%) of 30 CEA patients, a significant difference.

Most of the patients with microemboli had no neurologic symptoms. In those who did experience symptoms, most resolved within 36 hours. No patient died or had a stroke within 30 days of the procedure

Dr. Tedesco looked at a large number of patient and procedural characteristics in a search of risk factors for the development of microemboli. The only significant association was the presence of CAD. There was no link between microemboli and a host of other factors including age, a history of symptomatic disease, stroke, transient ischemic attacks, smoking, diabetes mellitus, hypertension, hyperlipidemia, obesity, peripheral vascular disease, or atrial fibrillation. Nor was there any association between microemboli and total fluoroscopy time or the performance of an arch angiogram.

Since 80% of the patients who had new microemboli after intervention had a history of CAD, Dr. Tedesco said, "This finding should be considered when recommending CAS for patients who are deemed high risk due solely to cardiac comorbidity."

—Robert Finn