Emboli Filters Prevent Stroke During Carotid Stenting

BY PATRICE WENDLING

Chicago Bureau

NEW ORLEANS — The benefits of emboli protection devices clearly outweigh the risks, with most major centers and trials reporting a 50% reduction in strokes during carotid artery stenting, Alex Abou-Chebl, M.D., reported during the joint annual meeting of the American Association of Neurological Surgeons and the American Society of Interventional and Therapeutic Neuroradiology.

Further, newer generation devices are easier to use, said Dr. Abou-Chebl, an interventional neurologist with the Cleveland Clinic department of neurology.

Transcranial Doppler studies have shown that all patients who undergo angioplasty or stenting of the carotid arteries have emboli. The greatest number of emboli is during the actual intervention, and not during guidewire placement.

Since the filter device is the first to pass through the lesion, it has the potential to trap many emboli and thereby reduce intraoperative events, Dr. Abou-Chebl said.



'We use these devices [because otherwise] we are going to cause stroke in 5%-8% of patients.'

DR. ABOU-CHEBL

The 30-day stroke rate in most stenting and angioplasty trials before the filter devices were available was quite high, between 5% and 8%.

"We use these devices not because we are going to cause stroke in 100% of patients, but because we are going to cause stroke in 5%-8% of patients, and in these patients we want to have these devices there to help us out," Dr. Abou-Chebl said.

Newer-generation devices are smaller and generally better tolerated. But the devices can be difficult to deliver in some lesions, increase the complexity of surgery, cause vasospasm and dissection, and fail. Vasospasm discontinues when the device is removed, and although serious, dissection occurs in less than 1% of patients and can be treated, Dr. Abou-Chebl said.

Critics have argued that the devices catch only platelet aggregation and thrombus formation on top of the device. Clinical experience suggests that the majority of particles are thrombotically formed from the carotid plaque, and range in size from 1.1 μ m to 5 mm, Dr. Abou-Chebl said.

Dr. Abou-Chebl has placed stents in 187 patients with a filter device and captured particles as large as 4.5 by 5 mm.

Large particles are trapped, but it's the smaller particles that come out of the plaque that mandate the use of some protection device, Lee R. Guterman, M.D., of the department of neurosurgery at the State University of New York at Buffalo said during the same scientific session.

"They cause either permanent or tran-

sient neurologic deficit," said Dr. Guterman, who has participated in all of the major stenting trials.

Emboli protection devices have been added to major angioplasty and stenting trials with consistently better results, with the exception of the Acculink for Revascularization of Carotids in High-Risk Patients (ARCHER) trial.

Dr. Abou-Chebl said he could not explain the ARCHER results, which showed a 30-day all-stroke rate of 7.6%

in the first phase without protection, 8.6% in the second phase with embolic protection, and 8.3% in the third phase using the rapid exchange versions of the devices.

Comparatively, data from the Stenting and Angioplasty With Protection in Patients at High Risk for Endarterectomy (SAPPHIRE) trial showed a 98.6% successful placement rate for the device and an overall stroke and death rate of 3.7% in a high-risk population.



The filter captures particles as large as 4.5 by 5 mm and reduces intraoperative events.

