

Rare Stroke Primarily Affects Women, the Young

Diagnosis and management of cerebral venous thromboembolism require 'a high level of suspicion.'

BY SHERRY BOSCHERT

FROM STROKE

The American Heart Association for the first time released guidelines for clinicians to help detect and treat cerebral venous thrombosis, a rare stroke that disproportionately affects young people, especially women who are pregnant or on oral contraceptives, or who just gave birth.

The guidelines include an algorithm for diagnosing and managing cerebral venous thromboembolism (CVT), which is caused by a clot in the dural venous sinuses, veins that drain blood from the brain toward the heart.

CVT is difficult to recognize because of its diverse risk factors and presentations. "The diagnosis and management of CVT requires a high level of suspicion," Dr. Gustavo Saposnik said in an interview. Dr. Saposnik, codirector of the stroke program at the University of Toronto, chaired the guidelines writing committee of nine experts from five countries, which reviewed the literature on CVT and rated the evidence behind their recommendations (Stroke 2011 Feb. 3 [doi:10.1161/STR.0b013e31820a8364]).

The guidelines have been endorsed by

the American Academy of Neurology, the American Association of Neurological Surgeons, the Congress of Neurological Surgeons, the Society of NeuroInterventional Surgery, and the Ibero-American Stroke Society.

Approximately five people per million develop CVT each year, accounting for 0.5%-1% of all strokes. In the largest cohort study of patients diagnosed with CVT, 54% were on oral contraceptives, 34% had an inherited or acquired prothrombotic condition, and 21% were pregnant or in the immediate postpartum period. Other predisposing conditions included infection in 12%, the presence of certain drugs in 8%, cancer in 7%, and other hematologic disorders in 12%. (Some patients had more than one predisposing condition.)

Patients may present with slowly progressive symptoms, and delays in diagnosis are common. Studies have reported a mean lapse of 4 days from onset of symptoms to hospital admission, and 7 days from onset of symptoms to diagnosis. Headache, the most common symptom, occurs in about 90% of cases. Seizures also are common. About 30%-40% of patients with CVT present with intracranial hemorrhage.

Women outnumber men with CVT at ages younger than 61 years. The incidence of CVT during pregnancy and post partum in Western countries ranges from one to four cases per 10,000 deliveries, with the greatest risk during the third trimester and in the first 4 weeks after delivery.

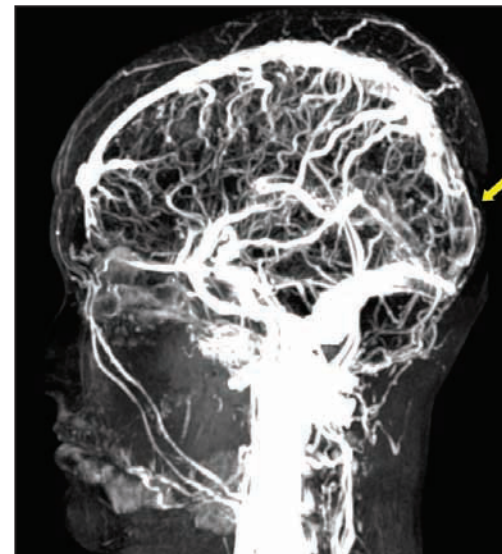
CVT is not a contraindication for future pregnancy, Dr. Saposnik said.

If a clinician suspects CVT, either MRI or magnetic resonance venography (MRV) is recommended to make the diagnosis by showing a thrombus obstructing the venous sinuses or cerebral veins. In emergency departments, either a CT scan or CT venography can be used if MRI is not available. "This allows different clinicians to initiate the appropriate work-up in the acute setting," Dr. Saposnik said.

Anticoagulation is the usual first-line therapy, with IV heparin or subcutaneous low-molecular-weight heparin in patients without contraindications. "There are several things that we still don't know. For example, the anticoagulation regimen and duration of IV anticoagulation therapy is not clear," he said.

There is only limited, low-grade evidence for alternative treatments, such as endovascular therapy or decompressive hemicraniectomy. "These should be re-

served for patients with progressive neurological deterioration despite anticoagulation therapy and the best medical



COURTESY DR. GUSTAVO SAPOSNIK

Magnetic resonance venography shows thrombosis of the superior sagittal sinus.

treatment," Dr. Saposnik said.

One coauthor reported a financial relationship with Boehringer Ingelheim, and another reported being an adviser or consultant for Servier and Tecnifar. Another coauthor received less than \$10,000 as an expert witness in a legal case concerning CVT. Disclosures of funding for the American Heart Association can be read at www.heart.org/corporatefunding. ■

Treating Mild Stroke Could Reduce Disability and Costs

BY MICHELE G. SULLIVAN

FROM THE INTERNATIONAL STROKE CONFERENCE

LOS ANGELES – The use of tissue plasminogen activator in patients with mild stroke could save thousands of them from long-term disability, and about \$200 million each year in stroke-related health care costs.

The decision to administer tPA to patients with mild stroke is a difficult one, balancing the possible benefits with the risk of further bleeding, Dr. Pooja Khatri said at the meeting. But her epidemiologic study of 150 mild strokes suggests that administering the drug could prevent the disability that affects up to one-third of these patients.

Her retrospective study drew its data from the Greater Cincinnati/Northern Kentucky Stroke Study. The database included 441 patients who were treat-

ed for ischemic stroke during 2005. Of those, 56% (247) had strokes that were considered mild, with a baseline modified Rankin Scale score of 2-6. And, of those patients, 62% (150) were considered eligible for tPA treatment; however, only 1% (4) received the drug.

Dr. Khatri, director of acute stroke at the University of Cincinnati Academic Health Center, did not follow the

If all 27,203 U.S. patients with mild stroke had received an effective treatment, up to 13% (3,761) could have been saved from stroke-related disability.

patients to compare clinical outcomes over time. However, she said, based on two extant studies, about 30% of mild stroke patients do experience deficits that affect their lives. "These tend to be on the milder end of the spectrum, but it's still disability."

She extrapolated her findings to the entire U.S. population in 2010, estimat-

ing that mild strokes would have occurred in 27,203 patients without baseline disability. If all of these patients had received an effective treatment, up to 13% (3,761) could have been saved from stroke-related disability.

The estimated annual cost savings could be immense, she said. "We could see a savings of \$200 million across the country," an estimate that includes the potential costs of adverse events associated with widening the treated population.

But her data don't directly address the day-to-day decisions clinicians have to make when faced with a mild stroke patient. Very few mild stroke patients receive tPA treatment, she said, because the potential gains are regarded as small against the risk of hemorrhage. Most of the time, things go well when treating mild stroke patients, because the risk of bleeding lessens with stroke severity. "But sometimes we get burned," Dr. Khatri said. "That [untreated] patient may end up being paralyzed on one side or having cognitive problems that we didn't recognize. ... On the other hand, we may treat and that patient can bleed and perhaps even die." The dilemma can be answered only by a large, randomized trial, she said – something she and her colleagues at the University of Cincinnati are trying to get started. ■

A Balancing Act That Could Pay Off

This study is a wake-up call, from the standpoints of both cost and the patient's daily life. From it, we can argue that every stroke is significant, so we must take all mild strokes very seriously when deciding treatment.

It's difficult to balance the risks of tPA treatment with the benefits in patients with mild stroke. It's true that the potential gain of treatment is smaller than that with a more severe stroke. On the other hand, tPA-related bleeding is less of a risk with mild stroke because the area of brain injury is smaller.

Treating mild stroke also may have some preventive role. We have a series of interventions we can use that lower the risk of subsequent stroke for people whose quality of life may not be seriously impaired after a mild stroke, but will be if they have another and another.

STEVEN GREENBERG, M.D., is professor of neurology at Harvard Medical School and director of hemorrhagic stroke research at Massachusetts General Hospital, both in Boston. He said he has no relevant conflicts of interest.

VITALS

Major Finding: Treating mild stroke with tPA could save almost 4,000 patients from long-term disability and save \$200 million each year in associated health care costs.

Data Source: An epidemiologic study of 247 patients with mild stroke, extrapolated to the entire U.S. population.

Disclosures: The study was sponsored by the National Institutes of Health; neither Dr. Khatri nor any co-authors had any financial disclosures.