

Rare form of stroke during pregnancies, post-partum underreported

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A rare and often underreported form of stroke that involves veins instead of arteries is more common than previously thought, according to the American Heart Association's first scientific statement on diagnosing and managing cerebral venous thrombosis (CVT).

The statement, published in *Stroke: Journal of the American Heart Association*, is a comprehensive review of the diagnosis, imaging, and early and long-term management (treatment) in different groups affected by CVT including children, young adults and women during pregnancy and post-partum. The [stroke](#) is caused by a clot in the dural venous sinuses, [veins](#) that drain blood from the brain toward the heart.

CVT disproportionally affects women who are pregnant or taking [oral contraceptives](#) and people 45 years and younger. The incidence of CVT during pregnancy and post-partum ranges from one in 2,500 deliveries to one in 10,000 deliveries in Western countries, according to the statement. The greatest risk periods are during the third trimester and in the first four post-partum weeks. Up to 73 percent of CVT in women occur during the time immediately after childbirth.

However, the risk of complications during future pregnancies is low, based on the writing committee's review of data.

The committee recommends patients with suspected CVT undergo blood tests to see if they have a prothrombotic factor – an inherited or acquired factor in the blood that predisposes to blood clots. It also recommends

screening patients for conditions that predispose to CVT, such as use of oral contraceptives, underlying inflammatory disease and infection.

“A predisposing condition to form clots or a direct cause is identified in about two-thirds of patients with CVT,” said Gustavo Saposnik, M.D., chair of the statement writing group and assistant professor of medicine at Saint Michael’s Hospital, University of Toronto.

“Examples include pregnancy, immediate post-partum, dehydration or infections in children, and patients taking oral contraceptives. Some of these predisposing conditions are transient and reversible.”

A blood test can determine if someone has a hereditary condition that makes their blood more likely to clot, thus increasing risk for a CVT.

The statement also highlights scenarios that cause doctors to miss or delay diagnosing CVT. Moreover, the clinical presentation may vary. For example, 30 to 40 percent of patients with CVT may develop an intracranial hemorrhage. “It’s important to distinguish a hemorrhage caused by ruptured of a brain artery from those associated with CVT. The mechanisms— and treatment — of the bleeding are quite different,” Saposnik said.

The statement recommends that patients having a brain hemorrhage with an unclear cause undergo an imaging scan of their cerebral veins assessed with an imaging test.

Headache is the most common symptom of CVT, as recorded in about 90 percent of patients in the International Study on Cerebral Venous and Dural Sinuses Thrombosis (ISCVT).

“The most common symptoms of patients with CVT include headaches that progress in severity over days or weeks, and seizures,” Saposnik

said. “Some patients may develop a focal neurological deficit (weakness affecting the extremities, double vision, etc.).”

The statement includes a process to help clinicians diagnose and manage CVT:

- Clinical suspicion of CVT
- MRI (or alternative imaging for centers with lower resources)
- Confirmation of CVT
- Initiation of anticoagulation therapy (IV Heparin)
- Continue anticoagulation therapy, 3-12 months to a lifetime
- In patients with progressive neurological deterioration despite medical treatment, other options may be considered (e.g hemicraniectomy, surgery that temporarily removes a section of skull to relieve pressure on the brain, or endovascular treatment, a minimally invasive brain surgery to remove vein/dural sinus clots)

The statement includes the endorsement of several scientific organizations (e.g. ASA, AAN, SIAECV, AANS, among others).

The CVT writing team includes a multidisciplinary group of experts from the United States, Canada, Mexico, Portugal and Argentina. Co-authors are: Fernando Barinagarrementeria, M.D.; Robert D. Brown Jr., M.D., M.P.H.; Cheryl D. Bushnell, M.D., M.H.S.; Brett Cucchiara, M.D.; Mary Cushman, M.D., M.Sc.; Gabrielle deVeber, M.D.; Jose M. Ferro, M.D., Ph.D. and Fong Y. Tsai, M.D.

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