Novel multiple sclerosis theory is dealt a blow by studies

By Shari Roan > Los Angeles Times | Posted: Monday, August 2, 2010 9:26 pm

LOS ANGELES — A novel theory about the cause of multiple sclerosis — one that quickly led to millions of dollars in research pledges and an increasingly popular, though unproven, treatment — took a hit Monday from two studies calling the premise into question.

The theory, proposed last year, had gained traction in a field desperate for research advances. It suggests that multiple sclerosis can be traced to obstruction in the veins carrying blood from the brain back to the heart — leading to nervous-system damage and causing the hallmark symptoms of muscle weakness, decreased coordination and vision problems.

Despite the fact that multiple sclerosis has long been acknowledged as an immune-system disorder, patients immediately leaped for MS endovascular surgery to open blocked or narrowed veins in the neck. The National MS Society has reported that one patient undergoing such treatment died.

Now research published online in the Annals of Neurology undermines the theory — called chronic cerebrospinal venous insufficiency by its creator, Italian researcher Paolo Zamboni.

In one study, conducted by German scientists, ultrasound-imaging tests of the veins around the brain and nervous systems of 56 multiple sclerosis patients found that blood flow was normal in all but one person. A control group of 20 healthy patients had similar blood flow.

The second study, conducted in Sweden, used a different type of imaging test to compare blood flow in MS patients and a group of healthy people; both had similar amounts of blood-vessel blockage.

"These are important, cautionary papers," said Dr. Stephen L. Hauser, chairman of the department of neurology at the University of California-San Francisco, who was not involved in the research. "It should help us all to step back and wait for additional word before any patient with MS moves forward."

The theory picked up steam late last year when Zamboni, director of the Vascular Diseases Center at the University of Ferrara in Italy, published a paper in the Journal of Vascular Surgery suggesting that the majority of 65 MS patients studied had abnormal blood drainage from the brain and spinal cord — and that angioplasty to open blocked veins improved symptoms. Zamboni theorized that poor blood flow causes blood to reverse and flow back into the brain, setting off inflammation and immune-system damage.

Dr. Florian Doepp, of University Hospital Charite in Berlin, did not find that to be the case.

"We had nearly completely different results than Dr. Zamboni," Doepp said.

"You can’t really explain the disease with this hypothesis," he added. "In theory, it could explain a little bit. But it’s not the whole story of multiple sclerosis. MS is a complicated disease."

In the other study, Dr. Peter Sundstrom, a neuroscientist at Umea University in Sweden, used magnetic resonance imaging to look for abnormal blood flow in the jugular vein. He found no significant differences in blood flow in 21 patients with multiple sclerosis and 20 healthy people.

"I see no point in doing angioplasty if there are no stenoses," or narrowing of the veins, Sundstrom said. "These two studies published in Annals today question if there is an increased prevalence of venous blockage in MS at all."

A third study, reported in April at the American Academy of Neurology annual meeting, produced ambiguous results. In that study, more than half of the MS patients who had participated in imaging studies showed signs of abnormal blood flow compared to about 23 percent of healthy patients and 42 percent of people with other neurological conditions. That study is ongoing at the University of Buffalo.

As many as 1,500 people with the disease in the United States and Canada have now sought treatment for venous insufficiency, according to some estimates. Multiple sclerosis affects approximately 400,000 Americans.

The surgery to open blocked blood vessels — by inserting a tiny balloon or stent into the veins — carries the risk of infection, blood clotting and excessive bleeding. Officials at Stanford University stopped offering it last year as a result of complications in some patients.

In the United States, the treatment is offered in clinical trials only at the University of Buffalo and at a vascular medical center in Albany, N.Y. It’s not known how many doctors are offering the treatment outside such trials.