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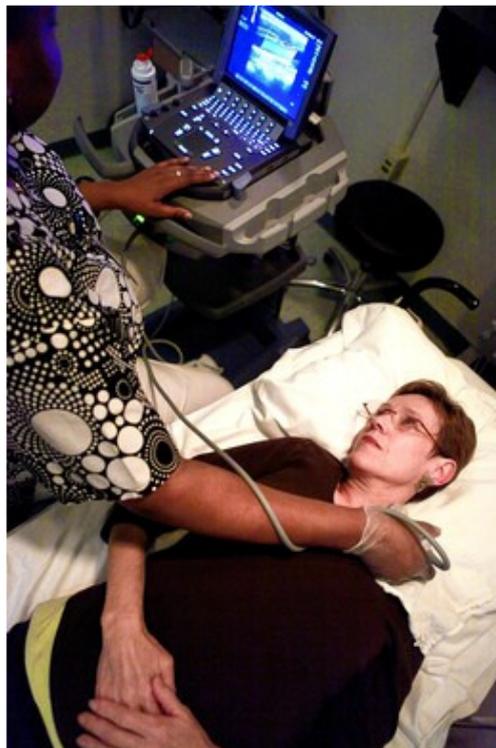
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Studies Cast Doubt on New MS theory

Research has emerged casting doubt on a popular new theory that multiple sclerosis is caused or worsened by blockages in the jugular veins.

In separate studies from Germany and Sweden, to be published Monday in the *Annals of Neurology*, researchers report they found no such trend of blockages in patients' jugular veins, which carry blood away from the brain back to the heart. The theory, championed by an Italian vascular surgeon and some doctors in the U.S., has inspired thousands of MS patients to get tested and, in some cases, to get treatment such as the insertion of metal stents in jugular veins to keep them open.



Associated Press

Heather Tuck gets an ultrasound exam in Washington in March as part of research on the role of blood vessels in multiple sclerosis.

"Our results challenge the hypothesis that cerebral venous congestion plays a significant role in the

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[disease process] of MS," wrote Florian Doepp, a neurologist at Humboldt University in Berlin, and colleagues. They did ultrasound and other imaging exams on 56 MS patients and 20 normal control-group patients. "Our results suggest the cerebral venous drainage in patients with MS is not restricted," they wrote.

A smaller study from Umea University in Sweden looked at 21 MS patients and 20 healthy patients and concluded, "We found no differences regarding internal jugular venous outflow."

MS is generally thought of as an autoimmune disease, meaning that a patient's body attacks its own cells. Symptoms vary widely but often involve progressive weakness and pain and can include speech disorders and spasticity.

The theory about jugular-vein blockage originated from Paolo Zamboni of the University of Ferrara in Italy. Dr. Zamboni's reports have spread rapidly among patients through the Internet, propelling thousands of MS patients to get examined or treated.

At Stanford University in California last year, a doctor treated 40 MS patients with balloon angioplasty or stents to open veins. Some patients reported symptom improvement. After one patient died and another underwent emergency surgery for a stent that floated into his heart, the university shut down the program but says it is considering further research.

Currently, a study at the State University of New York at Buffalo is examining 1,000 patients after about 10,000 sought to participate in the research.

Dr. Zamboni said he stands by his findings. He said he hasn't read the Swedish report, but he questions some methodology in the German research. He said his own multiyear survey of 500 MS patients has found that 90% have vein blockage, compared with only 2% of 1,000 control-group patients who are healthy or have other neurological diseases.

The reports from Germany and Sweden won't be the final word. The National Multiple Sclerosis

Society, along with its sister group in Canada, have funded more than \$2.4 million in studies to evaluate the vein-blockage theory. However, these two reports from Europe have heightened the skepticism of some MS experts about vein-blockage underlying MS.

Stephen L. Hauser, editor-in-chief of *Annals of Neurology* and chief of neurology at the University of California, San Francisco, said of the European research that "these two papers tried to replicate" Dr. Zamboni's findings, and that "the original concept hasn't been confirmed." Dr. Hauser had complained to Stanford after his patient had to undergo emergency surgery there after a stent in a vein floated into his heart.

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