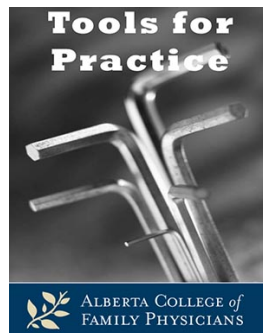


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Reviewed: March 4, 2015
Evidence Updated: Added RCT and updated context
Bottom line: No change
First Published: March 8, 2011



Vascular intervention for multiple sclerosis

Clinical Question: In patients with multiple sclerosis (MS), is angioplasty of obstructed extra-cranial venous lesions safe and does it improve MS symptoms?

Bottom-line: The initial study seemed promising, but was critically flawed for assessing benefit, and subsequent studies are generally not supportive. Presently, endovascular angioplasty for MS should not be recommended. The fluctuating nature of relapsing-remitting MS necessitates a long-term, multi-center, blinded RCT to determine if endovascular angioplasty is beneficial.

Evidence:

- Original cohort study, 65 MS patients with chronic cerebrospinal venous insufficiency (CCSVI) who all underwent angioplasty for obstructed azygous or internal jugular venous lesions.¹
 - Participants: Mean age 41, 46% male, minimal to moderate disability (not in wheelchair), taking MS disease-modifying agents.
 - Vascular outcomes: No serious operative or immediate post-operative complications.
 - Re-stenosis at 1-year ~50% for internal jugular.
 - Neurological outcomes at 18 months, compared to baseline (no control/placebo group):
 - No benefit seen in primary or secondary progressive MS subtypes.
 - Significant improvements in relapsing-remitting MS subtype.
 - Fewer patients relapsing over 1-year (50% versus 73%, $p=0.0014$).
 - Fewer patients with MRI lesions (12% versus 50%, $p<0.0001$).
 - Improved MS functional composite and quality of life scores.
 - Concerns: Single study site, not randomized, no control group, and unblinded.
 - Remission is a hallmark of relapsing-remitting MS: Untreated patients can have reductions (even prolonged) in clinical symptoms^{2,3} and/or MRI lesions.⁴ A control group and long-term follow-up essential.

- Small double-blind RCT of internal jugular or azygous vein angioplasty found nonsignificantly higher relapse rates in the treatment arm (3/9 patients) versus the sham arm (1/10 patients) and higher rates of new MRI lesions in treatment group at six months.⁵

Context:

- Hypothesis of CCSVI and MS: Chronic insufficient cerebral venous drainage → cerebral iron deposits → engender the immune response underlying MS. Angioplasty improves cerebral blood outflow → decreases cerebral iron deposits → improves MS symptoms.⁶
- Many patients are having this unproven procedure, and serious complications are being observed.^{7,8}
- Subsequent studies question the relationship between CCSVI and MS.⁹⁻¹⁴
- Provider organizations and patient groups state there is no indication of a connection between CCSVI and MS and there are risks associated with angioplasty therapy.^{15,16}

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