

ABSTRACTS

Gregory L. Moneta, MD, Abstracts Section Editor

Durability of carotid endarterectomy

Ecker RD, Pichelmann MA, Meissner I, Meyer FB. *Stroke* 2003;34:2941-4.

Conclusion: In a consecutive series of 1000 carotid endarterectomies (CEAs), the authors had a 30-day all stroke and death rate of 1.9% and a recurrent stenosis rate ($\geq 70\%$ stenosis) in the operated artery of 0.1%, with a mean time to recurrence of 4 ± 2 years.

Summary: This is a report of 1000 consecutive CEAs from the Department of Neurosurgery at the Mayo Clinic. There were 680 men, 320 women, aged 69 ± 8 years. Follow-up averaged 7.1 years (range, 2 to 11 years). Symptomatic internal carotid artery stenosis was present in 59% of the patients. All CEAs were performed with preoperative aspirin, intraoperative heparin, intraoperative EEG monitoring, and selective shunting based on EEG changes. Routine patch closure was used.

The combined 30-day all stroke and death rate was 1.9%. There were 9 deaths (0.9%); 6 were neurologic and 3 were cardiac. There were 10 strokes (1.0%). Of the 10 strokes, 7 made good recovery. Recurrent internal carotid artery stenosis of $\geq 70\%$ as documented by duplex scanning was found in only 10 patients (0.1%). The mean time to recurrence was 4 ± 2 years and only 2 of the recurrences were symptomatic.

Comment: This is another of a number of large, single institutional series of carotid endarterectomies documenting excellent short-term morbidity and mortality and long-term durability of CEA. This, and similar studies, have likely been stimulated by the increasing "visibility" of carotid stenting. The results of this study, however, while excellent, will have absolutely no impact on the debate of CEA versus carotid stenting. A properly performed randomized trial is required.

Effects of Benzaifibrate and Simvastatin on endothelial activation and lipid peroxidation in hypercholesterolemia: Evidence of different vascular protection by different lipid-lowering treatments

Desideri G, Groce G, Tucci M, et al. *J Endocrinol Metab* 2003;88:5341-7.

Conclusion: Circulating levels of endothelial adhesion molecules in hypercholesterolemic patients are decreased with Simvastatin but not Benzaifibrate.

Summary: Endothelial adhesion molecule-mediated leukocyte adhesion and transendothelial migration are fundamental steps in atherogenesis. The authors studied the effects in hypercholesterolemic patients of two lipid-lowering agents on circulating levels of endothelial adhesion molecules. Never-treated hypercholesterolemic outpatients ($n = 67$) and 32 controls matched for sex, age, blood pressure, inflammatory indexes, and acute phase reactive proteins were studied. Hypercholesterolemic patients were divided into four groups. Group 1 was treated with simvastatin (40mg/d), group 2 received benzaifibrate (80mg/d), group 3 was treated with simvastatin plus vitamin E, and group 4 was treated with benzaifibrate plus vitamin E. Circulating levels of intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1), and E-selectin were evaluated at baseline in all four patient groups and controls, and in the four patient groups following 1, 3, 4, and 6 months of treatment.

Circulating ICAM-1, VCAM-1, and E-selectin levels were higher in the hypercholesterolemic patient groups (groups 1-4) than in control subjects. Both simvastatin (group 1) and benzaifibrate (group 2), significantly reduced total and low-density lipoprotein (LDL) cholesterol concentrations ($P < .0001$). Simvastatin treatment was more effective than benzaifibrate. Vitamin E supplementation did not further reduce total or LDL cholesterol levels in either simvastatin- or benzaifibrate-treated patients.

Plasma ICAM-1, VCAM-1, and E-selectin significantly decreased during the 6 months of the simvastatin treatment ($P < .0001$). There was no decrease in endothelial adhesion molecule levels in patients treated with benzaifibrate alone. The addition of vitamin E resulted in further decreases in endothelial adhesion molecules in patients treated with simvastatin and in a decrease in endothelial adhesion molecules in the patients treated with benzaifibrate ($P < .0003$ to $P < .0001$).

Comment: The data demonstrate drug-induced cholesterol lowering is not necessarily associated with a reduction of endothelial activation in hypercholesterolemic patients. The beneficial effects of statin therapy in treatment of patients with hypercholesterolemia may be independent of, or additive to, cholesterol-lowering effects.

Measures of obesity are associated with vascular stiffness in young and older adults

Wildman RP, MacKey RH, Bostom A, et al. *Hypertension* 2003;42:468-73.

Conclusion: Measures of excess body weight are associated with increased levels of aortic stiffness in both African American and white populations, in both older subjects and subjects as young as 20 to 30 years of age.

Summary: Aortic pulse-wave velocity (aPWV) is a measure of aortic stiffness. Arterial stiffening predisposes patients to hypertension and aging of the vascular system. In this study, the association between aPWV and measures of obesity was determined in 186 younger adults (20 to 40 years) and 177 older adults (41 to 70 years). Measures of obesity evaluated included body weight, body mass index (BMI), waist and hip circumferences, and waist-to-hip ratio.

Median aPWV was 627cm/s for older adults and 468cm/s for younger adults ($P < .001$). Higher pulse-wave velocity correlated with higher levels of all measures of obesity ($p < 0.01$ for all measures). Twenty- to 30-year-old obese individuals ($BMI > 30$) had an aPWV 47cm/s higher than that of nonobese individuals ($P < .001$). In all cases, obesity measurements were strong independent predictors of aPWV. Results were consistent by race even in individuals as young as 20 to 30 years of age.

Comment: The precise mechanism whereby excess weight adversely affects the cardiovascular system is unknown. It is known, however, that increased arterial stiffness predisposes to hypertension, which is a strong risk factor for vascular disease. This study suggests one mechanism for an increased risk of vascular disease in young obese patients as they age.

Endovascular stent graft repair of abdominal and thoracic aortic aneurysms: A 10-year experience with 817 patients

Marin ML, Hollier LH, Ellozy SH, et al. *Annals of Surgery* 2003;238:586-95.

Conclusion: A total of 817 patients were treated with abdominal aortic (AA) or thoracic aortic (TA) stent grafts. Initial technical success was 93.8%, perioperative mortality was 2.3%, primary clinical success was $65 + 6\%$ at 8 years, and 5-year survival was $47 \pm 4\%$.

Summary: This is the experience of a single surgeon over 10 years who placed endovascular stent grafts in 817 patients at two institutions. There were 723 AA stent grafts and 94 TA stent grafts. Twelve different devices were used. Mean patient age was 74.3 years. Based on an intent-to-treat analysis, the overall technical success rate was 93.8% (94.9% for AA grafts and 85.1% for TA grafts). Type I or III endoleaks occurred in 7% of AA grafts and 15% of TA grafts. Type II endoleaks occurred in 21% of AA grafts and 10% of TA grafts. Primary clinical success (freedom from aneurysm-related death, graft infection, thrombosis, rupture, conversion to open repair, or development of Type I or Type III endoleak) was $65 \pm 6\%$ at 8 years. Device fatigue occurred in 7.8%. Freedom from aneurysm rupture was $98 \pm 1\%$ at 9 years. Overall survival at 5 years was $47 \pm 4\%$.

Comment: The great discrepancy between clinical success rates ($65 \pm 6\%$ at 8 years) and freedom from rupture ($98 \pm 1\%$ at 9 years) suggests stent grafts for aortic aneurysmal disease are effective at preventing aneurysm rupture but at a cost of many secondary procedures. This is a 10-year series. Undoubtedly, clinical success has improved in the more recent patients. Given the author's data, and the most recent FDA memo on endovascular stent grafting for abdominal aortic aneurysms, the concluding sentence of this report, "While significant advances have occurred since the initial experiences, additional improvements are essential before [endovascular stent grafting] becomes the standard of care," is appropriate.

The association of initial hemodialysis access type with mortality outcomes in elderly Medicare ESRD patients

Zue JL, Dahl D, Eben JP, Collins AJ. *Am J Kidney Dis* 2003;42:1013-9.

Conclusion: The type of initial hemodialysis access is associated with rates of one-year mortality in the US Medicare dialysis population. Mortality risk is lowest with fistula, intermediate with grafts, and highest with venous catheters.

Summary: Incident Medicare hemodialysis patients ($N = 66,595$) who were >67 years of age at time of dialysis initiation were studied with respective CPT and ICD-9 codes to assess the effect of initial access type on patient survival. A Cox regression analysis correcting for incidence year, sex, age, diabetes, race, body mass index, initial access type, days from first access