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CONFERENCE

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Asymptomatic 50-69% Carotid Stenosis what are the implications ??

- I have nothing to disclose for this talk

Clinically important stenosis, at which point the risk for stroke is increased, is defined as stenosis greater than 50% or 60%. Adults with asymptomatic carotid stenosis are at increased annual risk (2% to 5%) for ipsilateral carotid territory ischemic stroke.

- The goal of management of asymptomatic carotid stenosis is to decrease the risk for stroke and stroke-related deaths. However, the optimal therapeutic management strategy remains unclear.

prevalence

- in the United States
  - estimated prevalence of asymptomatic clinically significant carotid artery stenosis (≥ 50% stenosis)
    - 2%-9% in general population
    - 5%-9% in persons > 65 years old
    - 11%-26% in persons with coronary artery disease
    - 25%-49% in persons with peripheral artery disease

- Cardiac disease is the primary source of morbidity and mortality in patients with significant atherosclerosis, even when it presents in a non-cardiac bed.

- Pickett et al reported that the presence of a carotid bruit increased the rate of MI by more than 3-fold to 5% per year

- The rate of stroke in asymptomatic ICA stenosis has been decreasing over the past 2 decades.

Picket et al Lancet 2008

- Physicians' Health Study – NEJM 1989
  - ASA 325 mg vs placebo no diff in CVA
  - 44% RR in MI > 50 yr old
- Asymptomatic Cervical Bruit Study – Ann Intern Med 1995
  - No diff in the composite primary end point between ASA 325mg and placebo
- CAPRIE Trial – Lancet 1996
  - No diff in stroke rates between ASA 325mg and Plavix 75mg qd
- Women's Health Study – NEJM 2005
  - No diff in the composite primary end point ASA 81mg and Placebo
  - 1.1% vs 1.3%
- These trials are older and their applicability to contemporary practice of medicine in is unclear.

- The benefit of blood pressure reduction in stroke prevention has been demonstrated for diuretics, calcium channel antagonists, β-blockers, and antagonists of the renin angiotensin system.
- In the Heart Outcomes Prevention Evaluation (HOPE) trial, patients with cerebrovascular disease had a 30% RRR in the rate of stroke during 4.5 years of follow-up.
- In the Losartan Intervention For Endpoint Reduction in Hypertension Study (LIFE) trial, losartan had a RRR of fatal and nonfatal stroke by approximately 25% compared with atenolol in patients with essential HTN and LVH.

- Statin therapy may be largely responsible for the decrease in incidence of stroke in the past 10 years.
- Heart Protection Study (HPS) – Lancet 2002
  - 20, 536 patients 40 to 80 years with history of CAD, other occlusive arterial disease, or diabetes
  - 25% RRR of stroke between simvastatin 40mg and placebo
  - Reduced the rate of carotid revascularization by 50%
- Collaborative Atorvastatin Diabetes Study trial – Lancet 2004
  - Patients with type 2 diabetes and an additional cardiovascular risk factor
  - Atorvastatin 10 mg had a 48% RRR compared with placebo.

asymptomatic cea trials

trial	#pts	%stenosis	f/u	meds	outcome	risk
ACAS 1995	1662	>60	5y	asa	s/d	2.2%/yr
ACST 2004	3120	>60	5yr	??	S	2.4%/yr
VA 1993	444	>50	4yr	asa	S	2.4%/yr

- All three ‘classic’ asymptomatic trials demonstrated a benefit of CEA over medical management.

- The argument made today is over the ‘medical management’ used over 20 yrs ago.

ASA/ACCF/AHA/AANN/AANS/ACR/ASNR/CNS/SAIP/SCAI/SIR/SNIS/SVM/SVS Guideline

2011 ASA/ACCF/AHA/AANN/AANS/ACR/ASNR/CNS/SAIP/SCAI/SIR/SNIS/SVM/SVS Guideline on the Management of Patients With Extracranial Carotid and Vertebral Artery Disease

A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines, and the American Stroke Association, American Association of Neuroscience Nurses, American Association of Neurological Surgeons, American College of Radiology, American Society of Neuroradiology, Congress of Neurological Surgeons, Society of Atherosclerosis Imaging and Prevention, Society for Cardiovascular Angiography and Interventions, Society of Interventional Radiology, Society of NeuroInterventional Surgery, Society for Vascular Medicine, and Society for Vascular Surgery

Developed in Collaboration With the American Academy of Neurology and Society of Cardiovascular Computed Tomography

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The writing committee gratefully acknowledges the memory of Robert W. Hobson II, MD, who died during the development of this document but contributed immensely to our understanding of extracranial carotid and vertebral artery disease.

This document was approved by the American College of Cardiology Foundation Board of Trustees in August 2010, the American Heart Association Science Advisory and Coordinating Committee in August 2010, the Society for Vascular Surgery in December 2010, and the American Association of Neuroscience Nurses in January 2011. All other partner organizations approved the document in November 2010. The American Academy of Neurology affirms the value of this guideline.

The American Heart Association requests that this document be cited as follows: Brott TG, Halperin JL, Abbara S, Bacharach JM, Barr JD, Bush RL, Cates CU, Creager MA, Fowler SB, Friday G, Hertzberg VS, McIff EB, Moore WS, Panagos PD, Riles TS, Rosenwasser RH, Taylor AJ. 2011 ASA/ACCF/AHA/AANN/AANS/ACR/ASNR/CNS/SAIP/SCAI/SIR/SNIS/SVM/SVS guideline on the management of patients with extracranial carotid and vertebral artery disease: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines, and the American Stroke Association, American Association of Neuroscience Nurses, American Association of Neurological Surgeons, American College of Radiology, American Society of Neuroradiology, Congress of Neurological Surgeons, Society of Atherosclerosis Imaging and Prevention, Society for Cardiovascular Angiography and Interventions, Society of Interventional Radiology, Society of NeuroInterventional Surgery, Society for Vascular Medicine, and Society for Vascular Surgery. *Circulation.* 2011;124:e54–e130.

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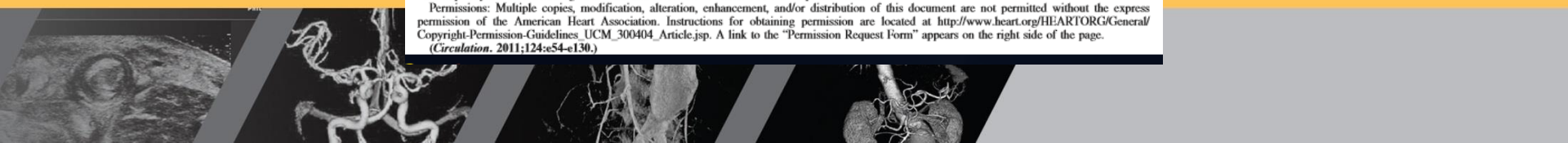


Extracranial Cerebrovascular Disease as a Marker of Systemic Atherosclerosis

- Patients with ECVD are at increased risk of MI and death attributable to cardiac disease, such that many patients with carotid stenosis face a greater risk of death caused by MI than of stroke.
- Risk factors associated with ECVD, such as cigarette smoking, hypercholesterolemia, diabetes, and hypertension, are the same as for atherosclerosis elsewhere.
- Whether symptomatic or asymptomatic, individuals with carotid atherosclerosis are more likely to have atherosclerosis that involves other vascular beds.

Hypertension and Carotid Stenosis

- Epidemiological studies, including the ARIC study, Cardiovascular Health Study, Framingham Heart Study, and MESA (Multi-Ethnic Study of Atherosclerosis), found an association between hypertension and the risk of developing carotid atherosclerosis. In the Framingham Heart Study, for example, there was a 2-fold greater risk of carotid stenosis >25% for each 20-mm Hg increase in systolic blood pressure.

Hypertension and Carotid Stenosis

- Class I

  Antihypertensive treatment is recommended for patients with hypertension and asymptomatic extracranial carotid atherosclerosis to maintain blood pressure below 140/90 mm Hg.

  (Level of Evidence: A)

Hypertension and Carotid Stenosis

- Antihypertensive therapy reduces the risk of stroke; meta-analysis of more than 40 trials and 188,000 patients found a 33% decreased risk of stroke for each 10-mm Hg reduction in systolic blood pressure to 115/75 mm Hg

Tobacco and Carotid Stenosis

- In large epidemiological studies, cigarette smoking has been associated with extracranial carotid artery IMT and the severity of carotid artery stenosis.

Tobacco and Stroke

- Smoking increases the RR of ischemic stroke by 25% to 50%. Stroke risk decreases substantially within 5 years in those who quit smoking compared with continuing smokers.

Cessation of Tobacco Smoking

- Class I

  Patients with extracranial carotid atherosclerosis who smoke cigarettes should be advised to quit smoking and offered smoking cessation interventions to reduce the risks of atherosclerosis progression and stroke.

  (Level of Evidence: B)

Control of Hyperlipidemia

- Class I

  Treatment with a statin medication is recommended for all patients with extracranial carotid atherosclerosis to reduce low-density lipoprotein (LDL) cholesterol below 100 mg/dL
  (Level of Evidence: B)

Control of Hyperlipidemia

- Class IIa
- If treatment with a statin (including trials of higher dose statins and higher-potency statins) does not achieve the goal selected for a patient, intensifying LDL-lowering drug therapy with an additional drug from among those with evidence of improving outcomes (ie, bile acid sequestrants or niacin) can be effective. (Level of Evidence: B)

Control of Hyperlipidemia

- There are multiple causes of ischemic stroke, and only a limited number of studies have specifically examined the effect of statins on stroke in patients with ECVD; the available data suggest that statins are beneficial.

Diabetes and Carotid Stenosis

- Class IIa
  - Diet, exercise, and glucose-lowering drugs can be useful for patients with diabetes mellitus and extracranial carotid atherosclerosis. The stroke prevention benefit, however, of intensive glucose lowering therapy to a glycosylated hemoglobin A1c level less than 7.0% has not been established. (Level of Evidence: A)

Diabetes and Carotid Stenosis

- Class IIa
- Administration of statin-type lipid-lowering medication at a dosage sufficient to reduce LDL cholesterol to a level near or below 70mg/dL is reasonable in patients with diabetes mellitus and extracranial carotid or vertebral artery atherosclerosis for prevention of ischemic stroke and other ischemic cardiovascular events.
- (Level of Evidence: B)

Diabetes and Carotid Stenosis

- In the Insulin Resistance Atherosclerosis Study, diabetes and fasting glucose levels were associated with carotid IMT, and carotid IMT progressed twice as rapidly in patients with diabetes as in those without diabetes.

Diabetes and Carotid Stenosis

- At least as important as treatment of hyperglycemia is aggressive control of other modifiable risk factors in patients with diabetes.

Antithrombotic Therapy

- Class I
  - Antiplatelet therapy with aspirin, 75 to 325 mg daily, is recommended for patients with obstructive or nonobstructive atherosclerosis that involves the extracranial carotid arteries for prevention of MI and other ischemic cardiovascular events, although the benefit has not been established for prevention of stroke in asymptomatic patients. (Level of Evidence: A)
  - Antiplatelet agents are recommended rather than oral anticoagulation for patients with atherosclerosis of the extracranial carotid arteries with (Level of Evidence: B) or without (Level of Evidence: C) ischemic symptoms.
- Class IIa
  - For patients with atherosclerosis of the extracranial carotid arteries in whom aspirin is contraindicated by factors other than active bleeding, including allergy, either clopidogrel (75 mg daily) or ticlopidine (250 mg twice daily) is a reasonable alternative. (Level of Evidence: C)

Antithrombotic Therapy

- Although antiplatelet drugs reduce the risk of stroke compared with placebo in patients with TIA or previous stroke, no adequately powered controlled studies have demonstrated the efficacy of platelet-inhibitor drugs for prevention of stroke in asymptomatic patients with ECVD.

Antithrombotic Therapy

- The Asymptomatic Cervical Bruit Study compared enteric coated aspirin, 325 mg daily, against placebo in neurologically asymptomatic patients with carotid stenosis of >50% as determined by duplex ultrasonography. On the basis of just under 2 years of follow-up, the annual rate of ischemic events and death due to any cause was 12.3% in the placebo group and 11.0% in the aspirin group (P=0.61), but the sample size of 372 patients may have been insufficient to detect a clinically meaningful difference

surveillance

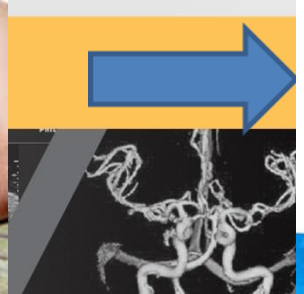
- It is reasonable to repeat duplex ultrasonography annually by a qualified technologist in a certified laboratory to assess the progression or regression of disease and response to therapeutic interventions in patients with atherosclerosis who have had stenosis greater than 50% detected previously. Once stability has been established over an extended period or the patient's candidacy for further intervention has changed, longer intervals or termination of surveillance may be appropriate. (Level of Evidence: C)
- Class IIa recommendation

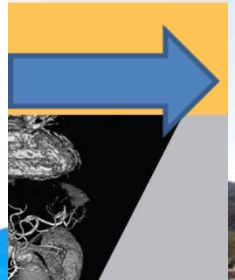
treatment algorithm

- Stop smoking
- Treat BP to below 140/90
- Treat cholesterol with statin to LDL <100 in non-diabetic, <70 in diabetic
- Anti-platelet (ASA)
- Treat Diabetes Mellitus
- Evaluate for presence of other atherosclerosis
- Repeat duplex 6 months
- Consider treatment if progresses to >70%

- STOP SMOKING
- ASA 325 mg daily
- Start statin
- Start ACE inhibitor

- Aggressive management of diabetes
- Healthy diet / weight loss / exercise



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