

HEALTH SCIENCE CENTER



TENAS AS:M + SCOTT&WHITK DEPARTMENT OF SUBGERY

Asymptomatic Carotid Stenosis: Surgery, Angioplasty or Medical Treatment

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UNITED STATES DEPARTMENT OF VETERANS AFFAIRS

Disclosure

I have no relevant financial relationships with proprietary entities producing health care goods or services related to the content of this presentation.

I participate in research for Endologix, Medtronic and Gore

Content may not reflect position of US Government

Perspective From A Conservative Vascular Surgeon

What to do with hemodynamically significant asymptomatic carotid stenosis?

- When to treat?
- Treatment method?
 - Best medical therapy
 - Endarterectomy CEA
 - Angioplasty & stent CAS



Historical Evidence for Decision Process

 Current practice management for carotid stenoses based on 30+ year old clinical trials

 Compared available medical management to CEA

 Symptomatic 70-99% stenoses – Randomized trial 1981-1994 – NACET

 Asymptomatic 50-99% stenoses – Randomized trial 1983-2003 - ACAS



North American Symptomatic Carotid Endarterectomy Trial Collaborators N Engl J Med 1991 Executive Committee for the Asymptomatic Carotid Atherosclerosis Study JAMA 1995

Historical Evidence for Decision Process

- Medical management
 - Risk factor modification + ASA
 - No Statin or current antiplatelet therapies
 - No modern agents for managing comorbidities



Historical Evidence for Decision Process

Results

- Symptomatic stenoses
 - 3%/yr prevention benefit from CEA
 - 6% stroke/death risk @ 30 days
- Asymptomatic stenoses
 - 0.5-1%/yr. prevention benefit from CEA
 - 3% stroke/death risk @ 30 days



Halliday, et al. 10-year stroke prevention after successful carotid endarterectomy for asymptomatic stenosis *Lancet 2010* Rerkasem & Rothwell. Carotid endarterectomy for symptomatic carotid stenosis. *Cochrane Database Syst Rev 2011(4)* Chambers & Donnan. Carotid endarterectomy for asymptomatic carotid stenosis. *Cochrane Database Syst Rev 2005(4)*

Current Evidence for Decision Process

Medical management - better today
Co-morbidities
Risk factors
Incidence of stroke in general population
Progressively declining over past 30 years
Stroke risk ~ 0.5%/year now



Current Evidence for Decision Process

CREST Trial

- CEA outcomes improved
 - Stroke and/or death
 - Symptomatic ~ 4.7%
 - Asymptomatic ~ 2.7% or less
- CAS Outcomes
 - Stroke and/or death

 - Symptomatic 6.4%
 Asymptomatic 4.5%

Outcomes of MI and cranial nerve injury • ? relevance

Silver FL, et al. Safety of stenting and endarterectomy by symptomatic status in the Carotid Revascularization Endarterectomy vs. Stenting Trial (CREST) Stroke Brott TG, et al. CREST Investigators. Stenting vs. endarterectomy for treatment of carotid-artery stenosis. N Engl J Med 2010

Factoids

- Screening risk stratified populations with Duplex Carotid Imaging – No Benefit!
 - No level I or II evidence to support this strategy
- CAS in USA reimbursed only
 - Tx of symptomatic > 50% stenosis/ulceration
 - Cerebral protection device must be used
 - Participation in FDA IDE trial
 - Participation in PMA registry

Centers for Medicare & Medicaid Services. National Coverage Determination (NDC) for Percutaneous Transluminal Angioplasty (PTA) (20.7) 2010 Abbott AL, et al. Why the United States Center for Medicare and Medicaid Services (CMS) should not extend reimbursement indications for carotid artery angioplasty/stenting. *Eur J Vasc Endovasc Surg* 2012;43:247-251

Asymptomatic

Only

SO----?

What to Do With the Patient With Symptomatic Carotid Disease

Best Overall Therapy

- Aggressive medical management
 - Statins
 - Antiplatelet agents
 - Optimal risk factor control
 - Optimal comorbidity treatment
- CEA or CAS



Abbott AL. Medical (nonsurgical) intervention alone is now best for prevention of stroke associated with asymptomatic severe carotid stenosis: Results of a systematic review and analysis. *Stroke 2009*

SO----?

What to Do With the Patient With Asymptomatic Carotid Disease

- Aggressive medical management
- Intervention for evidence of disease progression
 - Worsening of lesion by duplex imaging
 - Vulnerable plaque GSM <25
 - Critical stenosis >80%
 - End diastolic spectral velocity >120cm/sec
 - Acceptable risk for intervention
 - Onset of cerebral or retinal ischemic symptoms

NorScott&White 2011 Paraskevas, et al. Optimal contemporary management of symptomatic and asymptomatic carotid artery stenosis. *Vascular*

Which Intervention is Best for the Asymptomatic Patient with Worsening Carotid Stenosis?

- CEA & CAS are NOT equivalent for stroke prevention when performed by average surgeon / interventionist
- Isolated centers / operators have produced documented equivalence in both symptomatic & asymptomatic patients



Bonati LH, et al. Short-term outcome after stenting versus endarterectomy for symptomatic carotid stenosis: a preplanned meta-analysis of individual patient data. *Lancet 2010* Economopoulos KP, et al. Carotid artery stenting vs. carotid endarterectomy: meta-analysis of short and long-term outcomes. *Stroke 2011*

Who Benefits from CEA?

- Asymptomatic patients of low or average risk regardless of age
 - Peri-procedural stroke/death risk ~ 1.4%
- Patients with acute cerebral or retinal SSx who need intervention < 7 days
- Adverse anatomy for CAS
- Cost considerations



 Who May Benefit from CAS? Patients at "high risk" for CEA CAS in asymptomatic patients considered high surgical risk or < 70 years of age Peri-procedural stroke/death risk ~2.5% 	
Cardiac Issues	Vascular Issues
NY Class III/IV CHF	Contralateral carotid occlusion
LVEF < 30%	Recurrent stenosis after CEA
Unstable angina	Neck radiation
Recent MI	Hostile anatomy
	Carotid bifurcation >/= C2

Thank You