Carotid Debate:

High-Grade Asymptomatic Carotid Stenosis Should Never Get Repaired
Two of the Largest and Most Important Multicenter Randomized Clinical Trials

• ACAS (Asymptomatic Carotid Atherosclerosis Study)
  – North America
  – 1662 patients
  – 1987-1993
  – 5 year risk of ipsilateral stroke, perioperative stroke, or death
    • 5.1 % in the endarterectomy group
    • 11.0 % in the medically managed group

• ACST (Asymptomatic Carotid Surgery Trial)
  – Europe
  – 3120 patients
  – 1993-2003
  – 5 year risk of stroke or perioperative death
    • 6.4 % in the endarterectomy group
    • 11.8 % in the medically managed group

• Combined analysis of the 2 studies failed to show benefit of CEA in women
Revascularization Volume in Asymptomatic Patients with Carotid Stenosis

• 130,000 CEAs in the US in 1995
• Medicare patients 2004-2006
  – 88% of carotid endarterectomies were for asymptomatic patients
  – 87% of carotid artery stenting procedures were for asymptomatic patients
Change in Stroke Risk Over Time in This Population

• Medically managed patients with asymptomatic carotid stenosis
• 2% before 2000
• 1% by 2010 and in multiple studies since
• Coincident with more aggressive risk factor management
  – Hypertension
  – Dyslipidemia
  – Anti-platelet Utilization


Guidelines on Screening for Asymptomatic Carotid Stenosis

• In 2014, the US Preventive Services Task Force recommended against routine screening in the general adult population

• The prevalence of asymptomatic carotid stenosis is only 0.5% in adults over the age of 65

• Guidelines for selected subgroups vary among the various Society and Multi-Society criteria
  – Bruit present, clinically significant vascular disease, intermediate or high risk Framingham score, ≥ 2 vascular risk factors
  – “Reasonable,” “May be considered,” “Appropriate,” “Uncertain,” and “Should be considered”
  – None recommended screening for the general population
What About Select Asymptomatic Populations?

• CABG
  – No randomized trials
  – 2011 observational study reported 3% perioperative stroke risk in both patients with and without severe carotid stenosis
  – 2011 meta-analysis indicated a 2% risk of ipsilateral perioperative stroke in patients with asymptomatic carotid stenosis
  – Severe bilateral carotid stenosis may be different (6.5% risk of stroke)

• Progressive Carotid Stenosis on Repeat Imaging
  – 214 patients identified with moderate or severe stenosis
  – Median follow up was 13 years; 68% had progressive stenosis
  – 6.2% of those with progressive stenosis suffered a stroke
  – 14.4% of those with progressive stenosis had a TIA

Mahmoudi M, et al. Patients with severe asymptomatic carotid artery stenosis do not have a higher risk of stroke and mortality after CABG. Stroke. 2011;42(10):2801-2805.
What Are We Trying To Prevent?

• Carotid Occlusion?
  – Risk of stroke with occlusion is low!!!
  – 1990 – 2014, 3681 patients followed by carotid ultrasonography
  – 316 progressed to occlusion
  – Only 3 (0.9%) patients had an ipsilateral stroke
  – Only 1 (0.3%) patient had a stroke at the time of occlusion
  – All strokes were before 2005

• Artery to Artery Emboli
  – Echolucent plaques and microemboli on TCD of MCA correlated with higher stroke risk
  – Microemboli are reduced with both CEA and intensive medical therapy

Where Do We Go From Here?

• CREST-2 should help clarify whether CEA or stenting is superior to intensive medical management in asymptomatic carotid stenosis

• None of the previous trials addressing this question utilized intensive medical therapy

• 2 separate studies
  – 1240 patients randomized in each
  – Intensive medical therapy alone vs CEA plus intensive medical therapy
  – Intensive medical therapy alone vs carotid stenting plus intensive medical therapy
  – LDL < 70
  – Systolic BP < 140
  – High grade carotid stenosis >70%
Summary

- Older studies of stroke risk and intervention in asymptomatic carotid stenosis prior to intensive medical management strategies favored intervention.

- More recent studies examining stroke risk in patients treated with intensive medical management raise the distinct possibility that intervention in this group may be ill-advised.

- CREST-2 should clarify whether or not invasive procedures are superior to intensive medical management alone.
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