Clinical Decision Making In Asymptomatic Patients MedCAC 1/25/12

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Why treat Asymptomatic Carotid Stenosis?

- Carotid Stenosis is responsible for 20% of ischemic strokes **(Abbott AL, et al Int J Stroke, 2007;2:27-39)**
- Only 1/3 of strokes are preceded by warning TIA*
- Estimated 13 million Americans have silent cerebral infarctions*
- Stroke mortality is 10% @ 30D, 30% permanent disability, 20% Institutionalized at 3 months*

*** AHA Heart Disease and Stroke Statistics -2011 Update, Circulation 2011;123:e11-209**

Selecting Asymptomatic Patients to Treat

- Identify patients most likely to benefit from intervention
- Identify patients least likely to suffer harm from intervention
- Identify intervention (CEA, CAS, BMT) that has the lowest overall stroke and death rate

Asx CS and Stroke

- Stenosis: >60% - 2.3% / yr
  > 75% - 4-5% / yr
- Plaque progression: 48% @ 1 yr
- Ulceration: 12.5% @ 1 yr
- Silent infarctions: 4.8% @ 1 yr
- Risk factor stratification : stenosis, age, BP, Contralateral symptoms, plaque character:
  <5% to >20% / year

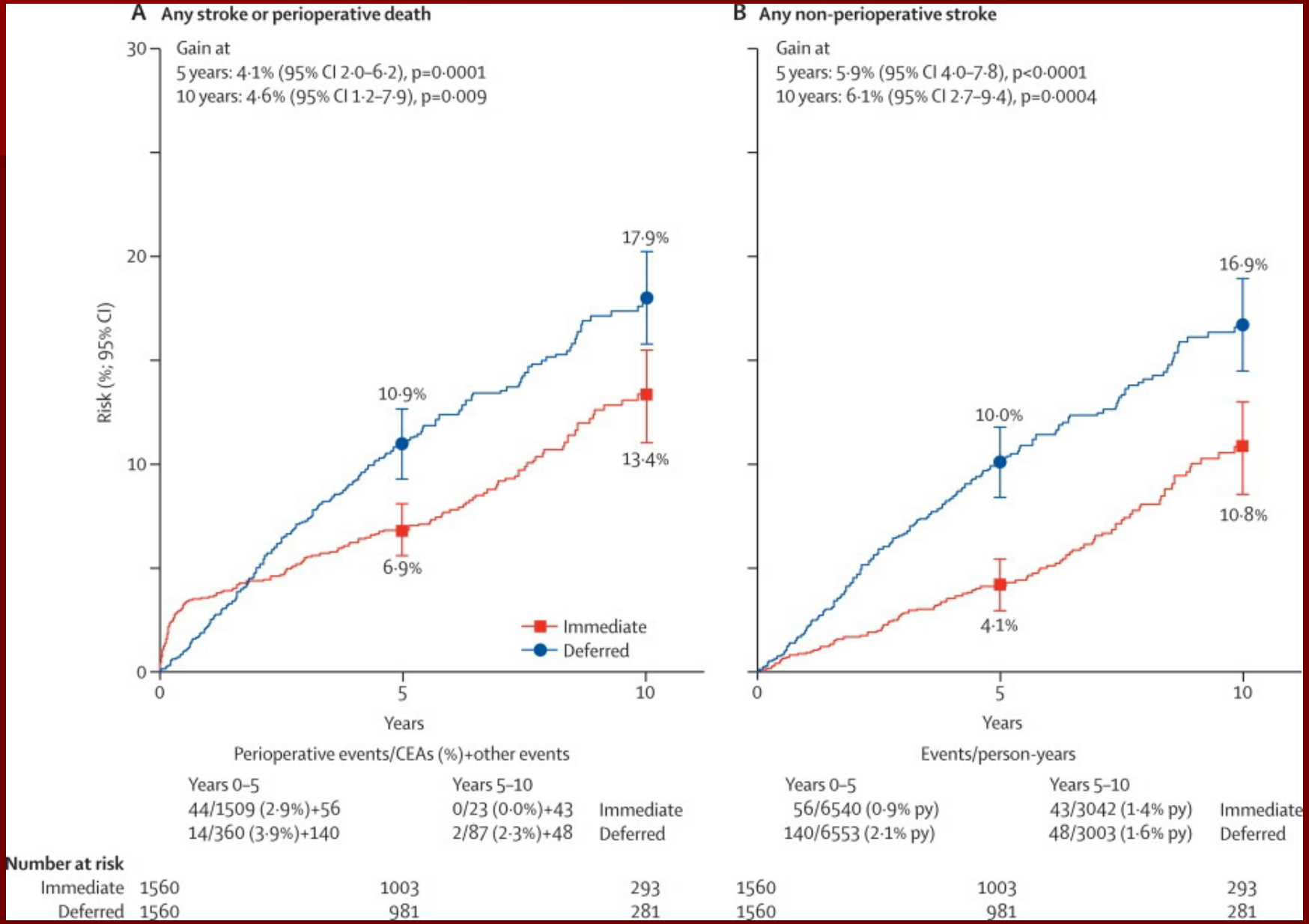
  Survival important in estimating cumulative stroke risk

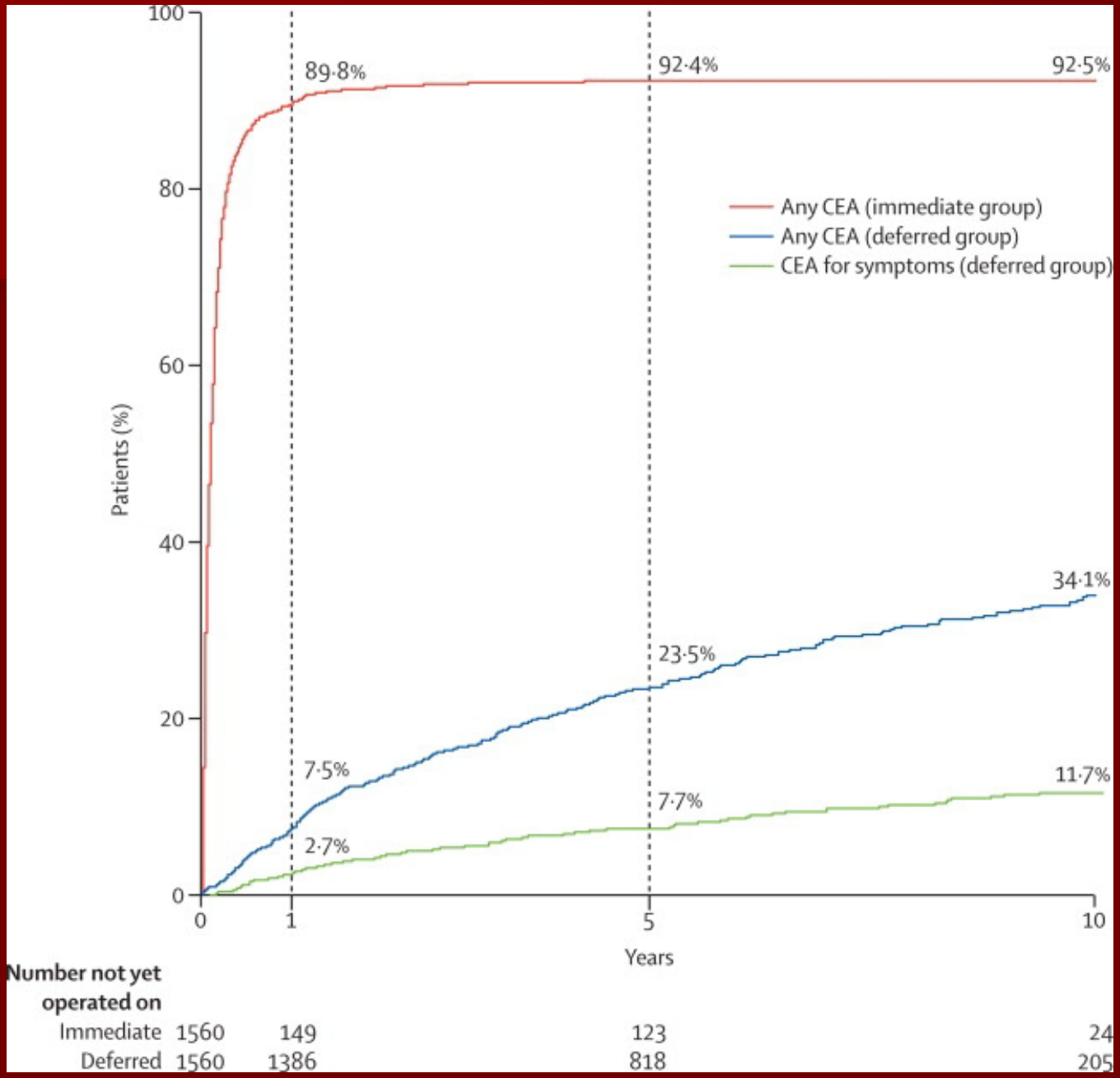
Long Term Results in Patients with Asymptomatic Carotid Stenosis: ACST 10 year Data

Halliday A, et al

Lancet 2010:376 1074-1084

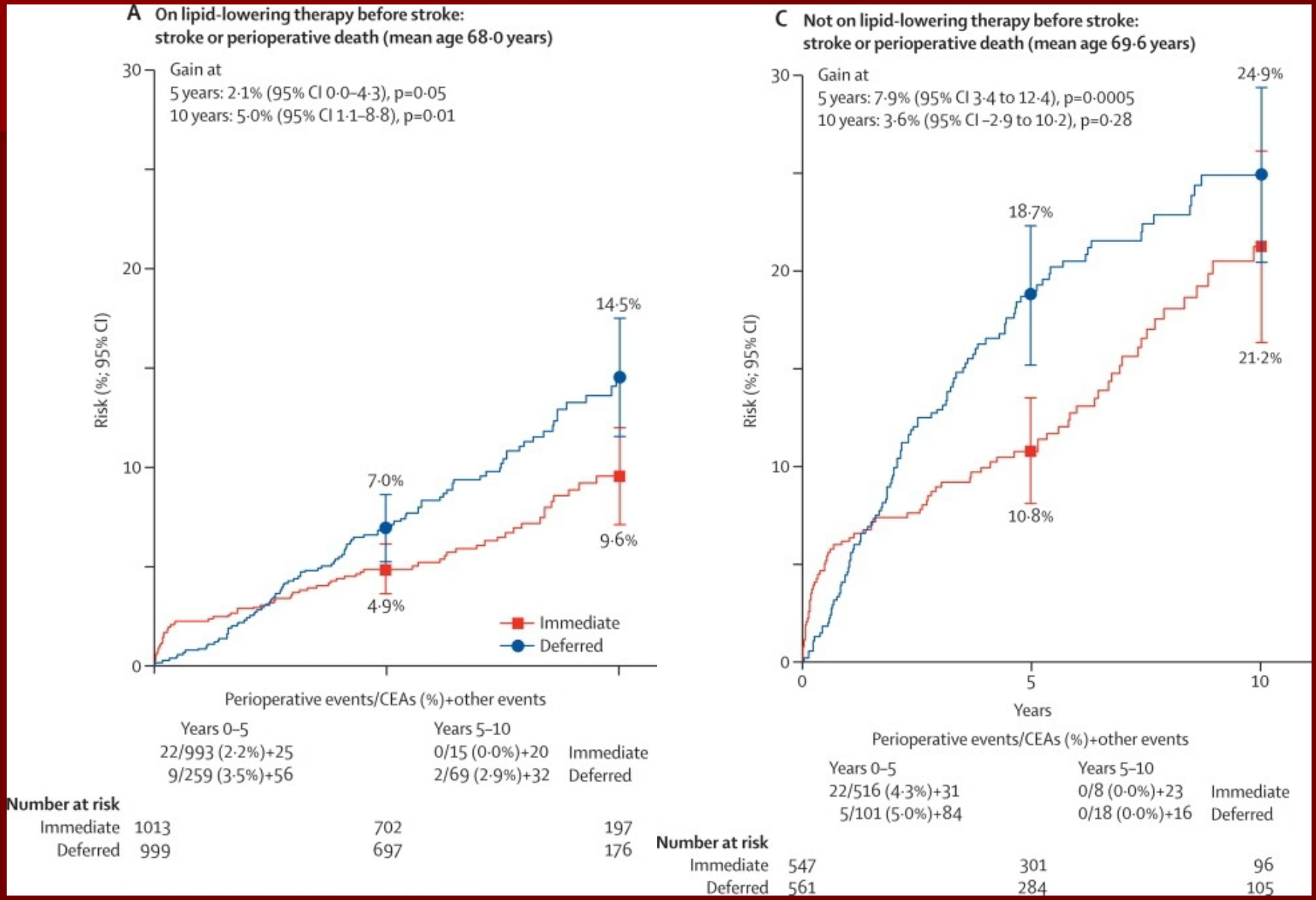
ACST 10 Year Results





ACST Incidence of Late CEA in Medical Arm

ACST Risk Reduction - Lipids



Selecting Intervention for Asymptomatic Stenosis

- Major morbidity after CEA is cardiac
- Major morbidity after CAS is stroke
- CREST suggested age affected outcomes
  - <70 favored CAS, >70 favored CEA
  - ? plaque character, arch, CAD
- Reducing Cardiac Morbidity should improve results of CEA
- Reducing Stroke Morbidity should improve results of CAS

Periprocedural risks: CEA vs CAS

(Murad et al JVS 2011;53:792-7)

Table II. Absolute risk difference per 1000 patients

Outcome	*RD (95% CI)*	*Quality of evidence*	*Interpretation*
Death	3.44 (-1.29, 11.44)	Moderate[a]	CAS is associated with 3 more deaths (from 1 fewer to 11 more)
MI	−10.15 (-13.17, -5.16)	High	CAS is associated with 10 fewer MI's (from 13 fewer to 5 fewer)
Stroke	18.77 (1.96, 42.23)	High	CAS is associated with 19 more strokes (from 2 more to 42 more)

CAS, Carotid artery stenting; *CEA*, carotid artery endarterectomy; *CI*, confidence interval; *MI*, myocardial infarction; *RD*, risk difference presented as a percentage with endarterectomy as a reference.

Analysis assumed the median control event rate from patients undergoing carotid endarterectomy in the included trials and relative risks from random effects meta-analyses.

[a]Quality of evidence downgraded due to imprecision of meta-analytic estimate.

Factors Associated with Stroke risk in CAS

- Arch Configuration
- Access issues – angulation, stenosis
- Lesion Character – “echolucent” plaque, calcification, length >15mm, preocclusive stenosis
- Age

A combination of these factors may increase OR of stroke with CAS by 2.5-5.6
(Settaci et al. *Siena CA Stenting Score.* Stroke 2010;41:1259-65}

Reducing Morbidity in Asymptomatic Patients

- **Cardiac Screening** – patients with active or occult coronary ischemia should be identified and treated before consideration for carotid intervention
- **Stabilize all medical conditions** – CHF, COPD, HTN, DM
- **Institute BMT** in all patients prior to intervention – antiplatelet, beta blockers, statins
- **Avoid intervention** in pts with severe comorbidities or limited life expectancy

Intervention in Asymptomatic Stenosis: CREST results

- 1182 Asx pts periprocedural S/D
  CAS 2.5% **CEA** 1.4%
- Patients were good candidates for either intervention
- Intervention carried out by experienced CEA and CAS practitioners
- Results represent the best currently attainable

Selecting Intervention in Asymptomatic Patients

- Level 1 data supports CEA in Asx patients based on degree of stenosis even with relatively low event rate in the Medical Arm – based on low morbidity of CEA
- While “Best Medical Therapy” has improved, so have the results of Intervention – CREST results
- Improved patient selection should result in application of intervention to those most likely to benefit and least likely to suffer complications

Clinical Decision Making in Asymptomatic Patients

- Level 1 data supports CEA in pts with low periprocedural event rates
- Medical Comorbidities must be treated and stabilized for optimal results
- Only pts with significant life expectancy (3-5 years) should be considered for intervention
- Stratifying stroke risk among pts with >60% stenosis is an important goal
- Trials comparing BMT, CEA and CAS are needed