Best Medical Therapy vs carotid endarterectomy vs carotid stenting

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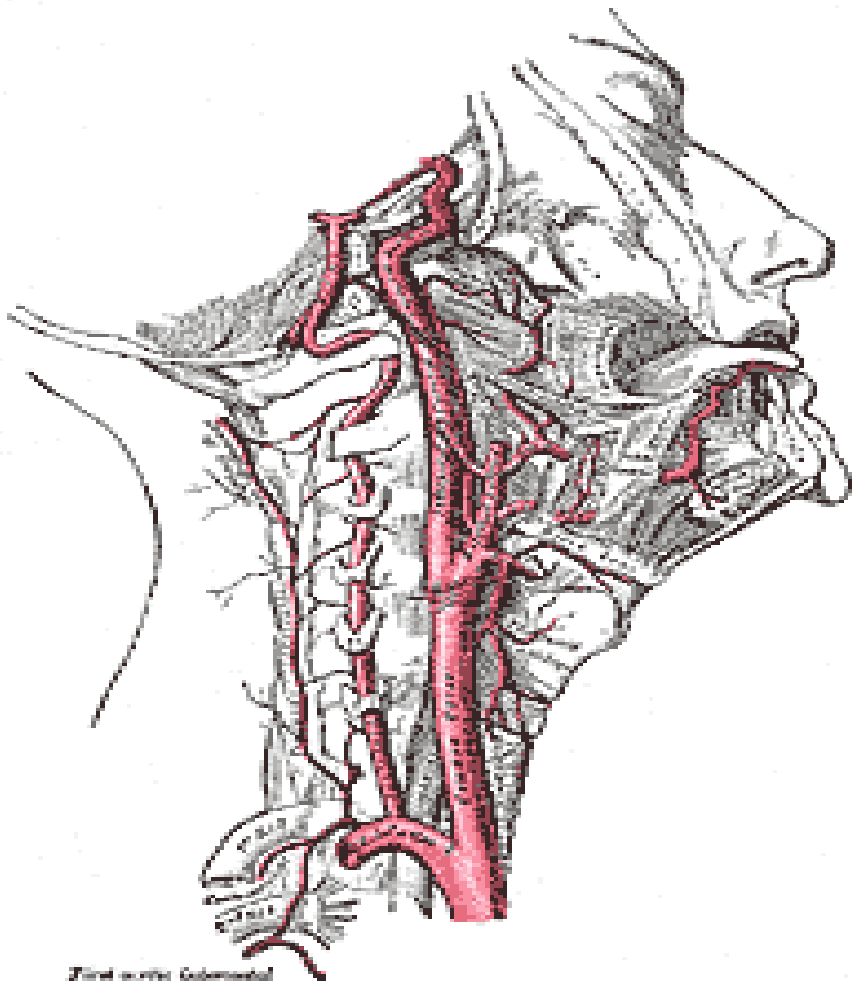
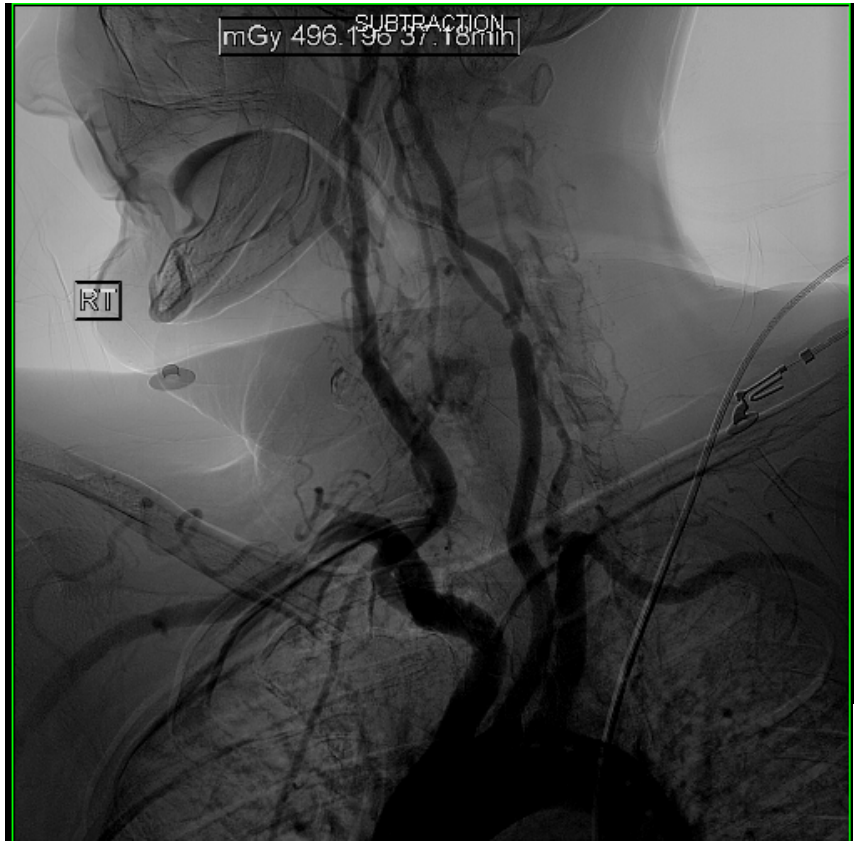




Extra cranial cerebral vascular disease

Stroke

- Millions affected
- > half require assistance
- Major adverse effect
- Huge financial burden

Extra cranial cerebral vascular disease

- Affect older patients
- Risk for atherosclerosis

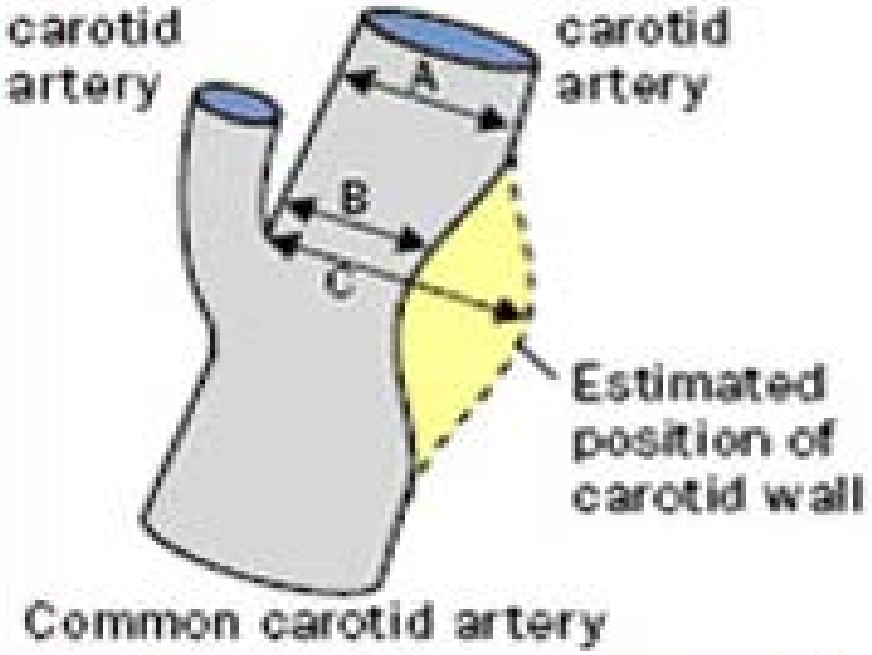
Extra cranial cerebral vascular disease

investigations

- Duplex
- CTA
- Angiogram

Diagnostic criteria

Difference between NASCET and ECST in measurement of Internal carotid artery stenosis



NASCET $\frac{A-B}{A}$ ECST $\frac{C-B}{C}$

NASCET	ECST
30	65
40	70
50	75
60	80
70	85
80	91
90	97

Approximate equivalent degrees of internal carotid artery stenosis used in NASCET and ESCT according to recent direct comparisons

Diagnostic velocity criteria

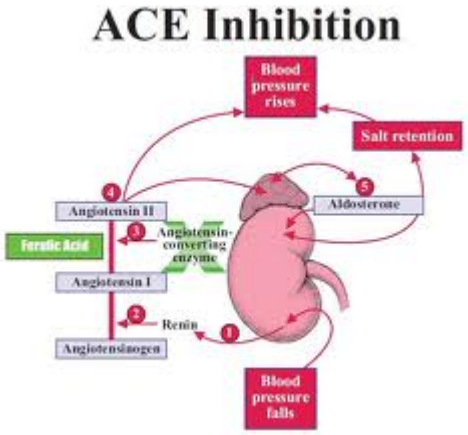
% stenosis NASCET	PSV ICA cm/s	PSVICA/ PSVCCA ratio	St Mary's ratio PSVICA/EDVCCA
<50%	<125	<2	<8
50 – 60%	≥125	2 - 4	8 - 10
60 – 69%			11 - 13
70 – 79%	≥230	≥4	14 - 21
80. - 90%			22 - 29
>90% but not near occlusion	≥400	≥5	>30
Near Occlusion	High, low string flow	Variable	variable
Occlusion	No flow	Not applicable	Not applicable

Extra cranial cerebral vascular disease

management

- BMT ± Surgical Intervention

BMT



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Extra cranial cerebral vascular disease

- BMT vs CEA + BMT
  - Asymptomatic
  - Symptomatic
- CEA vs CAS
  - Asymptomatic
  - Symptomatic
- BMT vs CAS ????

BMT vs CEA + BMT

Asymptomatic

RCT	30-day death/stroke	Ipsilateral stroke plus perioperative death/stroke		Any stroke plus perioperative death/stroke	
	After CEA	CEA + BMT	BMT alone	CEA + BMT	BMT alone
VACS	4.6%	7.0% at 4 yrs	9.4% at 4 yrs	10.4% at 4 yrs	12.0% at 4 yrs
ACAS	2.3%	5.1% at 5 yrs	11% at 5yrs	12% at 5yrs	17.8% at 5yrs
ACST-1	2.8%	Not vailable	Not available	6.4% at 5yrs	11.8% at 5yrs

Age Gender

BMT vs CEA + BMT

Asymptomatic

Any stroke at 5 yrs including operative risk

stenosis	CEA	BMT	ARR	RRR	NNT	Stroke prevention /1000 CEA
ACAS	5,1%	11,0%	5,9%	54	17	59
ACST	6,4%	11,8%	5,4%	46	19	53

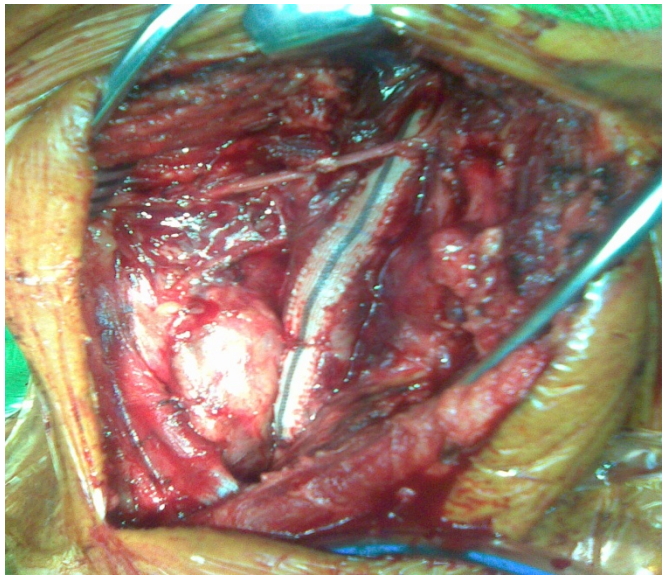
NEJM1995; Lancet 2004

BMT vs CEA + BMT

Symptomatic

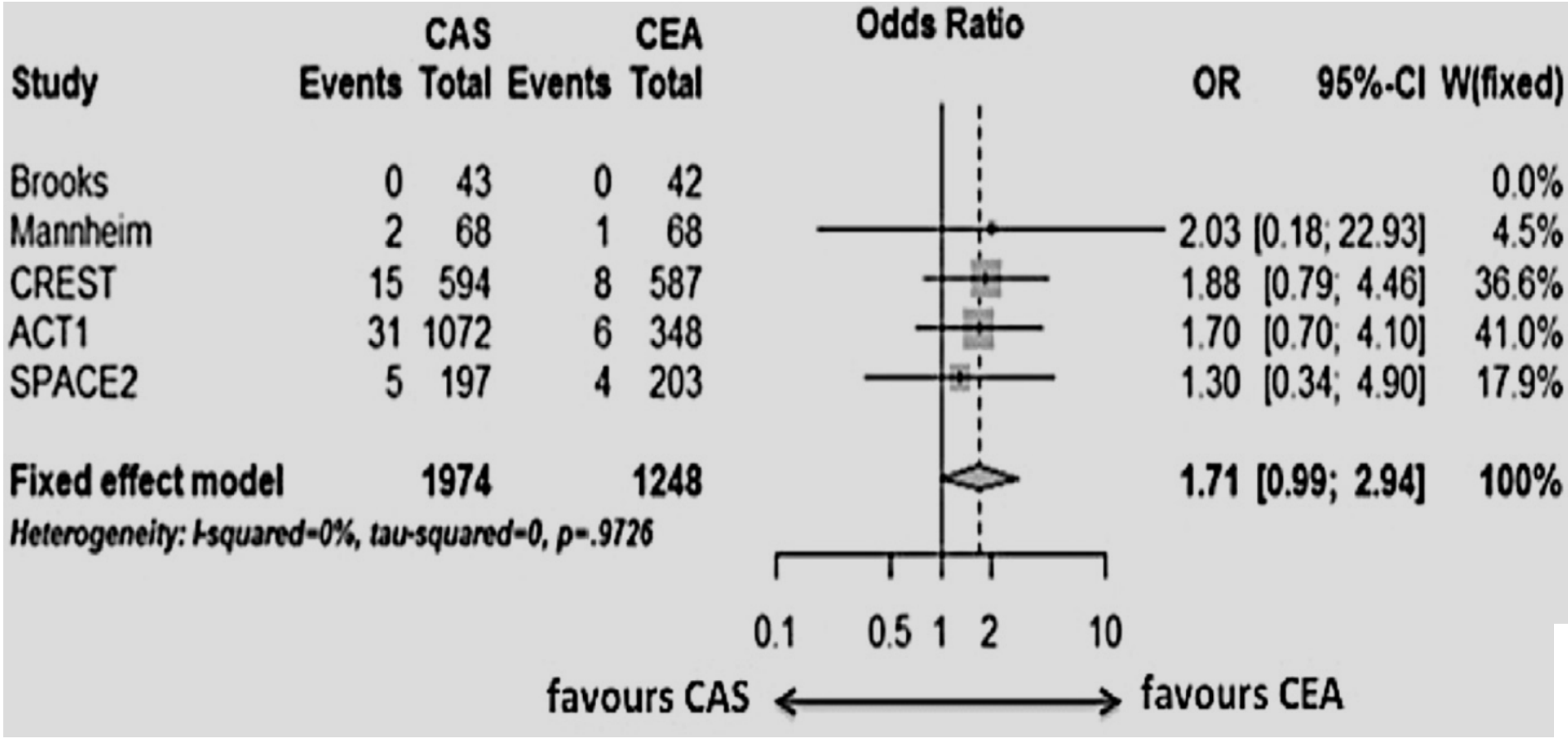
Stenosis severity	5-year risk of any stroke (inc. perioperative)		ARR	RRR	NNT to revent one stroke	No. of strokes prevented per 1000 CEA
NASCET	CEA + BMT	BMT alone	@ 5 yrs	@ 5 yrs	No benefit	@ 5 yrs
0 – 30%	18.4%	15.7%	-2.7%	No benefit	No benefit	None
30 – 49%	22.8%	25.5%	+2.7%	No benefit	No benefit	27
50 – 69%	20.0%	27.8%	+7.8%	28%	13	78
70 – 99%	17.1%	32.7%	+15.7%	48%	6	156
Near occlusion	22.4%	22.3%	-0.1%	No benefit	No benefit	None

CEA vs CAS



CEA vs CAS

Asymptomatic



CEA vs CAS

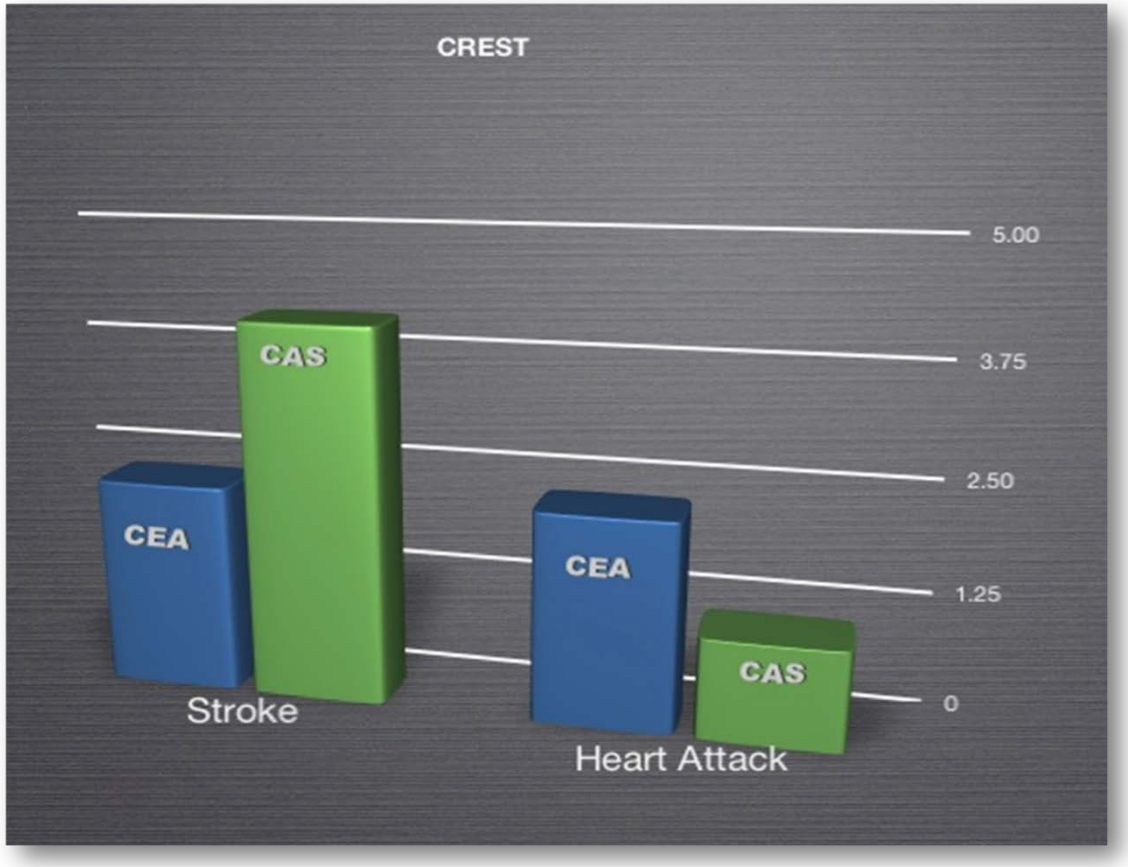
Symptomatic

TRIAL	CEA	CAS	P-VALUE
EVA-3S	3.9%	9.6%	0.01
SPACE	6.3%	6.8%	0.09
ICSS	4.7%	8.5%	0.001
CREST	4.5%	5.2%	0,38

CEA vs CAS

30-day outcomes	Symptomatic patients	
	hazard ratio (95% CI)	
Any stroke	1.81 (1.40-2.34)	favouring CEA
Death/stroke	1.72 (1.29-2.31)	favouring CEA
Death/stroke (males)	1.86 (1.19-2.91)	favouring CEA
Death/stroke (females)	1.53 (1.02-2.29)	favouring CEA
Death/stroke/MI	1.44 (1.15-1.80)	favouring CEA
Cranial nerve palsy	0.08 (0.04-0.14)	favouring CAS
Myocardial infarction	0.44 (0.23-0.87)	favouring CAS
Severe haematoma	0.37 (0.18-0.77)	favouring CAS

CEA vs CAS



Guidelines

	<50%	50-69%	70-99%
symptomatic TIA/stroke within 6 month	Fresh thrombus Large ulcer	Sx<3% M/M Good op risk Male	Sx<6%M/M
asymptomatic			Sx<3% M/M Good op risk male <75yrs

Thank you

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