



Università di Padova



Universität Freiburg i. B.



Medizinische Universität
Innsbruck

SCUOLA EUROPEA DI SCIENZE
DELLA SALUTE

TRATTAMENTO DELLE PATO- LOGIE VASCOLARI SOPRA- AORTICHE: NUOVE STRATEGIE

CONVEGNO INTERUNIVERSITARIO

AUTONOME PROVINZ
BOZEN SÜDTIROL
Autonome Südtirol
Gemeinschaft



PROVINZIA AUTONOMA
DI BOLZANO ALTO ADIGE
Provincia Autonoma di Bolzano
Garda



EUROPÄISCHE SCHULE FÜR
GESUNDHEITSWISSENSCHAFTEN

DIE BEHANDLUNG SUPRA- AORTALER GEFÄSSPATHO- LOGIEN: NEUE STRATEGIEN

INTERUNIVERSITÄRE TAGUNG

Bolzano - 20 aprile 2013

SALA CONGRESSI dell'Ospedale
Regionale di Bolzano

Bozen - 20. April 2013

KONGRESS-SAAL des
Regionalkrankenhauses von Bozen



SAPIENZA
UNIVERSITÀ DI ROMA

AZIENDA OSPEDALIERA
SANT'ANDREA
FACOLTÀ DI MEDICINA E
PSICOLOGIA

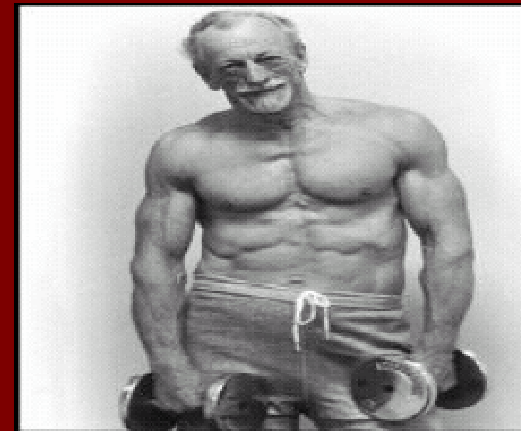


UOC Chirurgia Vascolare
Direttore: Prof. M. Taurino

**La chirurgia carotidea nel
paziente ultraottantenne**
**Die Carotis Chirurgie beim
überachtzigjährigen Patient**

NOW A DAYS

2011 3 MILION
2030 8 MILION
> 260.000 “new” octogenarian / year



demo.istat.it 2011

	Women	Men
• 2010	84,1	79,2
• 2020	85,5	80,7
• 2030	86,6	82,0
• 2040	87,7	83,3
• 2050	88,8	84,6

**Increase in life
expectancy**

LIFE STYLE

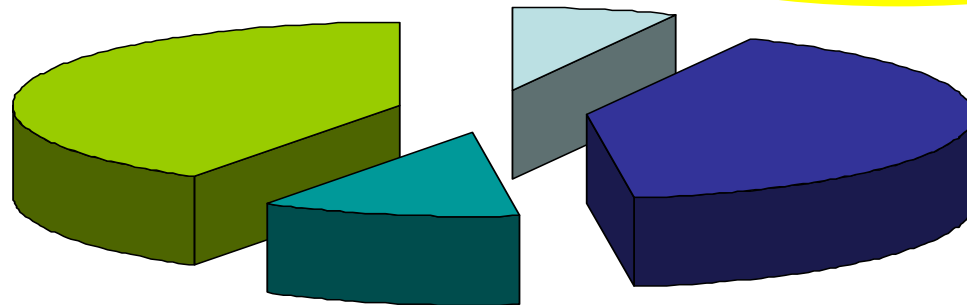
ARE YOU
SATISFIDE WITH
YOUR HEALTH ?



Censis 2010

Satisfactory 41 %

Unsatisfactory 7 %



Excellent 11 %

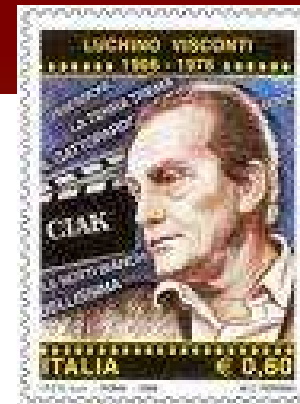
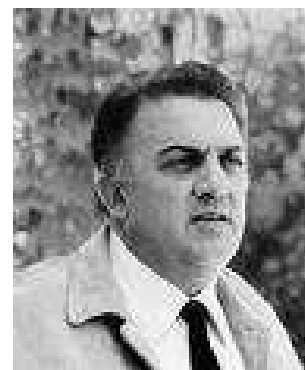
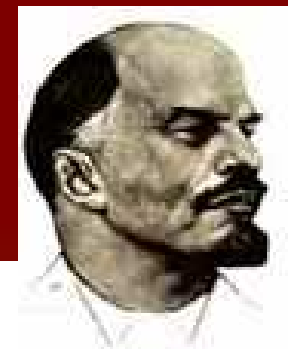
Good 41 %



Social Impact

Cerebrovascular Diseases:

- Primary cause of permanent disability
- Third cause of death
- In 20% of octogenarians (Moore 1995; Benavente 1998)



Economic Impact

The cost of a patient who has suffered a stroke is about 34.000 €

During the first year can ranges from 9.500 € to 32.000 €



Terent Stroke 1994

Symptomatic Patients

SPREAD

Stroke Prevention And Educational Awareness Diffusion



RACCOMANDAZIONE 13.1 GRADO A:

L'endoarteriectomia carotidea è indicata nella stenosi **sintomatica** uguale o maggiore del 70% (valutata con il metodo NASCET).

RACCOMANDAZIONE 13.2 GRADO A:

sintomatica

	CEA	Results
NASCET	25 CEA /y <6% event rate	CEA > Medical Tx
ECST	≥12 CEA /y <5% event rate <3% for aSx patients	CEA > Medical Tx

Asymptomatic Patients



Carotid Endarterectomy for Asymptomatic Carotid Stenosis Asymptomatic Carotid Surgery Trial

P.M. Rothwell, MD, PhD, FRCP; L.B. Goldstein, MD

Effective prevention is inarguably the best option for reducing the individual and societal burden of stroke. For each patient, clinicians balance the benefits of a given preventive therapy against its associated risks and costs. Where possible, these assessments should be based on the results of randomized clinical trials. Carotid endarterectomy (CEA), the most-commonly used surgical procedure to prevent stroke, has been subjected to several randomized trials. These underlie evidence-based guideline and consensus statements providing recommendations for its use.¹⁻⁷ The evidence base for endarterectomy for symptomatic stenosis is considerable,^{8,9} but guidelines on surgery for asymptomatic stenosis have been largely based on the results of the Asymptomatic Carotid Atherosclerosis Study (ACAS)¹⁰ in conjunction with other smaller trials.^{11,12} Guidance differs from endorsement of the operation for selected patients (eg, based on patient age, life expectancy, concomitant illnesses, etc.) with varying degrees of asymptomatic stenosis (gener-

There was also concern that the very low operative risks in ACAS (excluding complications of angiography: 1.5%, 95% CI, 0.6% to 2.4% for stroke and death; and 0.14%, 95% CI, 0% to 0.4%, for death) could not be matched in routine clinical practice. ACAS only accepted surgeons with an excellent safety record, rejecting 40% of initial applicants and subsequently barring from further participation some surgeons who had adverse operative outcomes during the trial.¹⁴ Figure 1 compares the operative risks in ACAS with the results of a meta-analysis of the 46 surgical case series that published operative risks for asymptomatic stenosis during ACAS and the 5 years after publication.¹⁵ Operative mortality

ACAS

Stroke 2004

5.1% in surgical group
versus 11% in no surgery

✦ 10-year stroke prevention after successful carotid endarterectomy for asymptomatic stenosis (ACST-1): a multicentre randomised trial

ACST
Lancet 2010
(unico trial che ha
incluso pz. > 79yy)

Alison Halliday, Michael Harrison, Elizabeth Hayter, Xiangling Kong, Averil Mansfield, Joanna Marro, Hongchao Pan, Richard Peto, John Potter, Kazem Rahimi, Angela Rau, Steven Robertson, Jonathan Streifler, Dafydd Thomas, on behalf of the Asymptomatic Carotid Surgery Trial (ACST) Collaborative Group*

Summary

Lancet 2010; 376: 1074-84

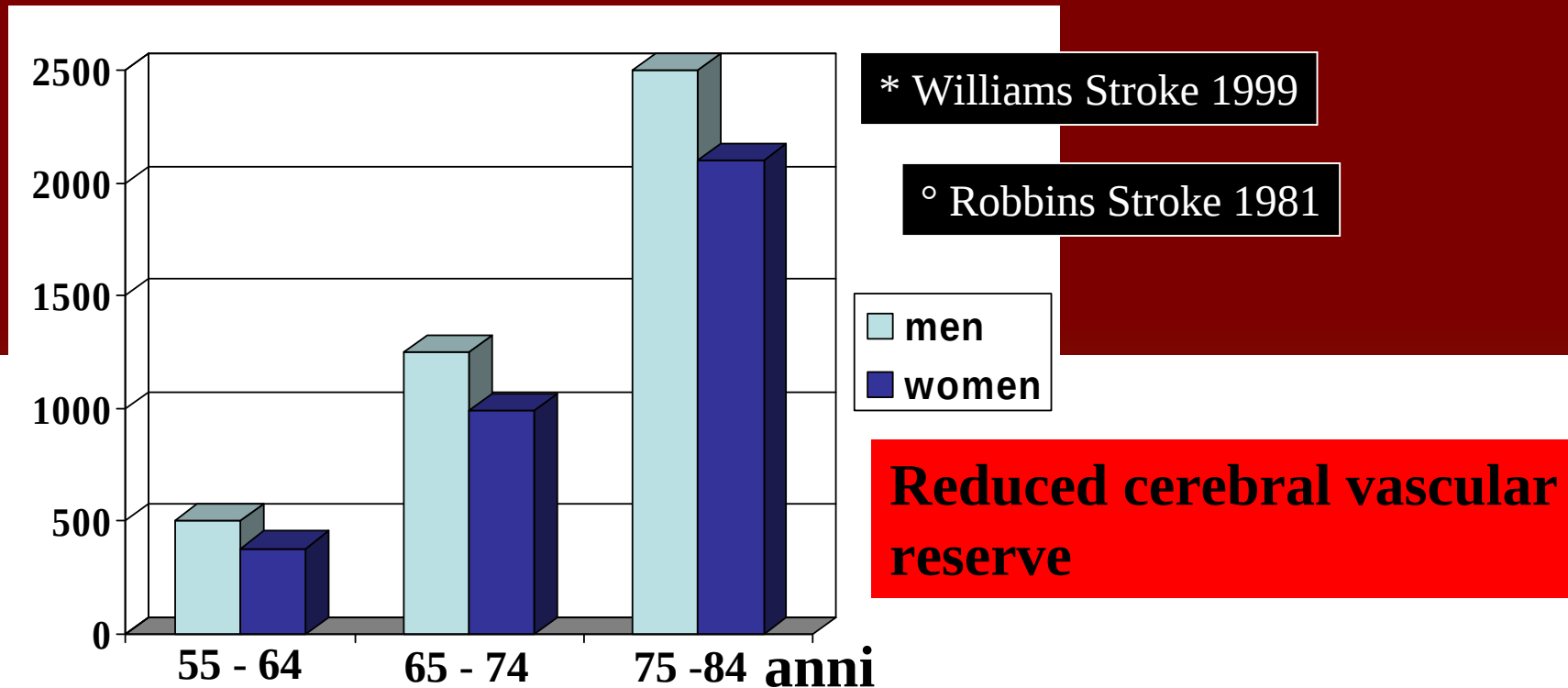
See Editorial page 1025

See Comment page 1078

Background If carotid artery narrowing remains asymptomatic (ie, has caused no recent stroke or other neurological symptoms), successful carotid endarterectomy (CEA) reduces stroke incidence for some years. We assessed the long-term effects of successful CEA.

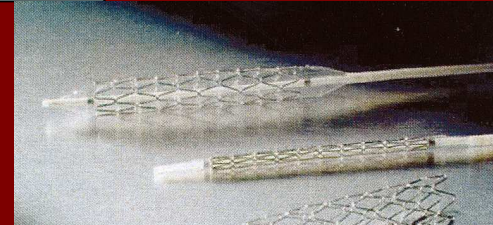
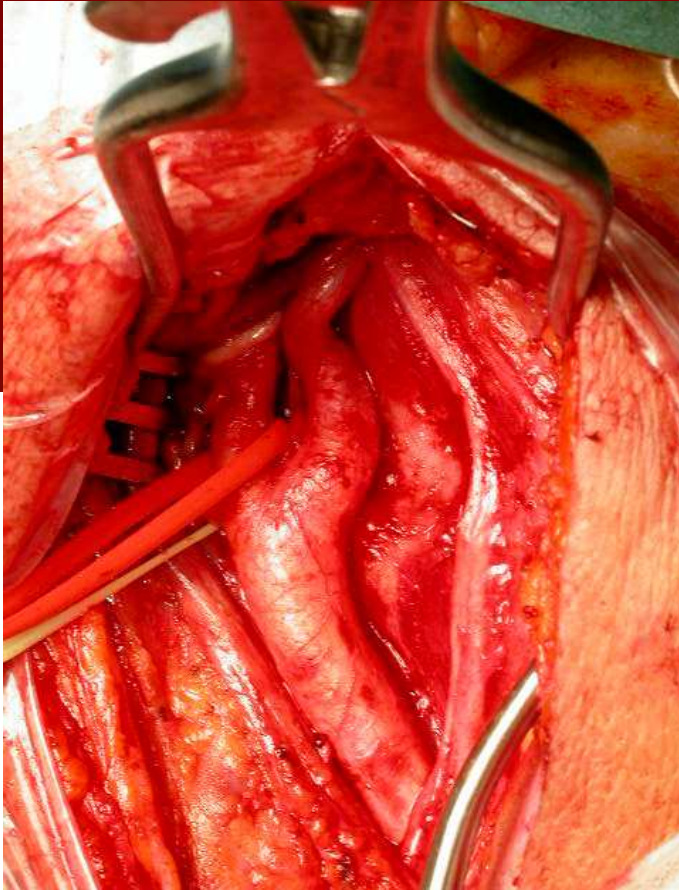
(3.5% in the surgical group versus 6.1% in the no surgery group)

Octogenarian asymptomatic patient: high risk of stroke



The incidence of stroke increases exponentially with age*
and is the second cause of death after 85 yy.°

CEA 0 CAS?



	Stenting group (n=853)	Endarterectomy group (n=857)	Hazard ratio (95% CI)	Risk difference, % (95% CI)	p value*
Stroke, death or procedural myocardial infarction	72 (8.5%)	44 (5.2%)	1.69 (1.16 to 2.45)	3.3% (0.9 to 5.7)	0.006
Any stroke	65 (7.7%)	35 (4.1%)	1.92 (1.27 to 2.89)	3.5% (1.3 to 5.8)	0.002
Any stroke or death	72 (8.5%)	40 (4.7%)	1.86 (1.26 to 2.74)	3.8% (1.4 to 6.1)	0.001
Any stroke or procedural death	68 (8.0%)	36 (4.2%)	1.95 (1.30 to 2.92)	3.8% (1.5 to 6.0)	0.001

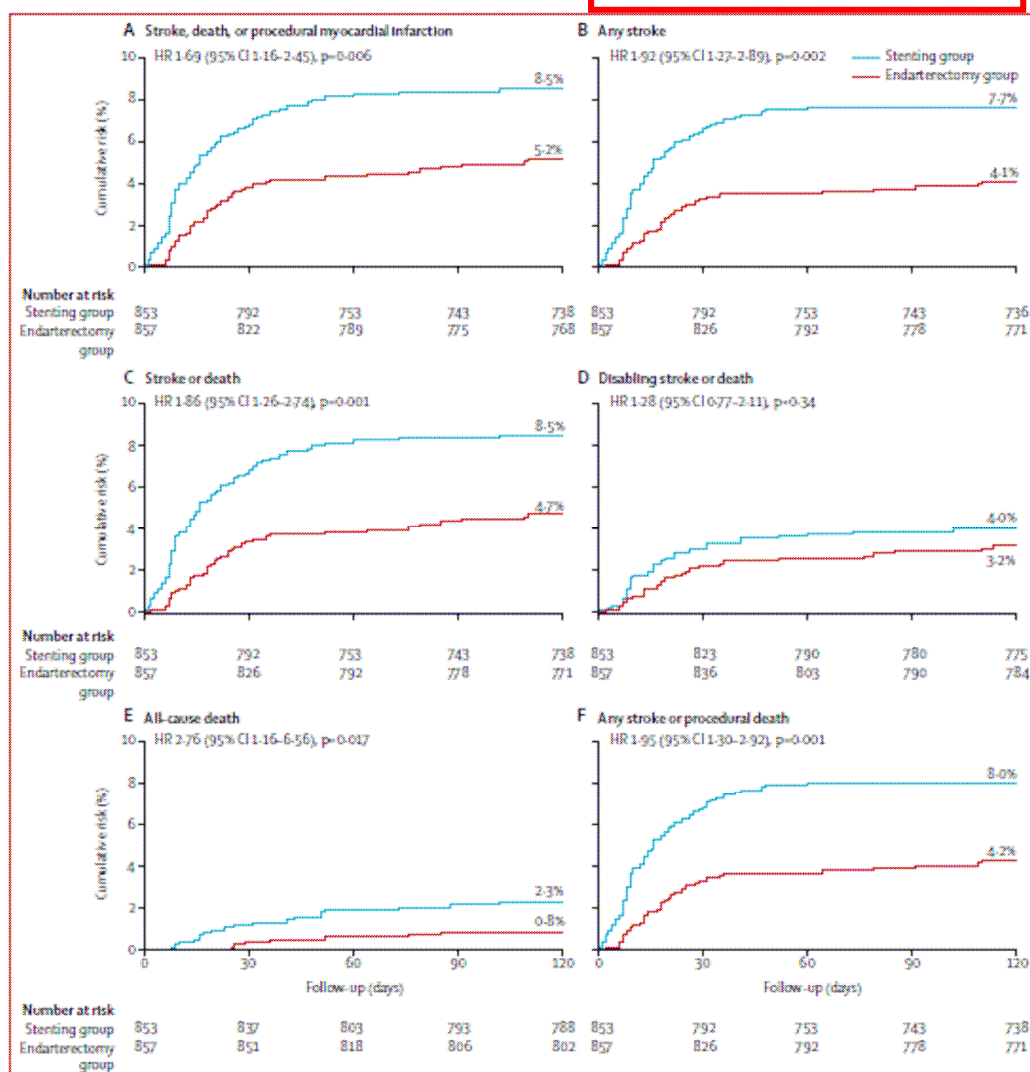


Figure 3: Kaplan-Meier estimates of cumulative incidence of various outcome measures
Data were analysed by intention to treat. The numbers above the end of the lines are the incidence estimates at 120 days after randomisation. HR=hazard ratio.



Carotid artery stenting compared with endarterectomy in patients with symptomatic carotid stenosis (International Carotid Stenting Study): an interim analysis of a randomised controlled trial

International Carotid Stenting Study investigators*

Summary

Background Stents are an alternative treatment to carotid endarterectomy for symptomatic carotid stenosis, but *Lancet* 2010;375:985-97

Table 3. Primary End Point and Its Individual Components among the 1181 Asymptomatic and the 1321 Symptomatic Patients, According to Treatment Group.*

End Point	Periprocedural Period					4-Yr Study Period (Including Periprocedural Period)				
	CAS	CEA	Absolute Treatment Effect of CAS vs. CEA (95% CI)	Hazard Ratio for CAS vs. CEA (95% CI)	P Value	CAS	CEA	Absolute Treatment Effect of CAS vs. CEA (95% CI)	Hazard Ratio for CAS vs. CEA (95% CI)	P Value
	no. of patients (% $\pm$ SE)	no. of patients (% $\pm$ SE)	percentage points			no. of patients (% $\pm$ SE)	no. of patients (% $\pm$ SE)	percentage points		
Myocardial infarction										
Asymptomatic patients	7 (1.2 $\pm$ 0.4)	13 (2.2 $\pm$ 0.6)	-1.0 (-2.5 to 0.4)	0.55 (0.22 to 1.38)	0.20					
Symptomatic patients	7 (1.0 $\pm$ 0.4)	15 (2.3 $\pm$ 0.6)	-1.2 (-2.6 to 0.1)	0.45 (0.18 to 1.11)	0.08					
Any periprocedural stroke or postprocedural ipsilateral stroke										
Asymptomatic patients	15 (2.5 $\pm$ 0.6)	8 (1.4 $\pm$ 0.5)	1.2 (-0.4 to 2.7)	1.88 (0.79 to 4.42)	0.15	24 (4.5 $\pm$ 0.9)	13 (2.7 $\pm$ 0.8)	1.9 (-0.5 to 4.3)	1.86 (0.95 to 3.66)	0.07
Symptomatic patients	37 (5.5 $\pm$ 0.9)	21 (3.2 $\pm$ 0.7)	2.3 (0.1 to 4.5)	1.74 (1.02 to 2.98)	0.04	48 (7.6 $\pm$ 1.1)	37 (6.4 $\pm$ 1.1)	1.2 (-1.8 to 4.1)	1.29 (0.84 to 1.98)	0.25
Any periprocedural stroke or death or postprocedural ipsilateral stroke										
Asymptomatic patients	15 (2.5 $\pm$ 0.6)	8 (1.4 $\pm$ 0.5)	1.2 (-0.4 to 2.7)	1.88 (0.79 to 4.42)	0.15	24 (4.5 $\pm$ 0.9)	13 (2.7 $\pm$ 0.8)	1.9 (-0.5 to 4.3)	1.86 (0.95 to 3.66)	0.07
Symptomatic patients	40 (6.0 $\pm$ 0.9)	21 (3.2 $\pm$ 0.7)	2.8 (0.5 to 5.0)	1.89 (1.11 to 3.21)	0.02	51 (8.0 $\pm$ 1.1)	37 (6.4 $\pm$ 1.1)	1.6 (-1.4 to 4.6)	1.37 (0.90 to 2.09)	0.14

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812

JULY 1, 2010

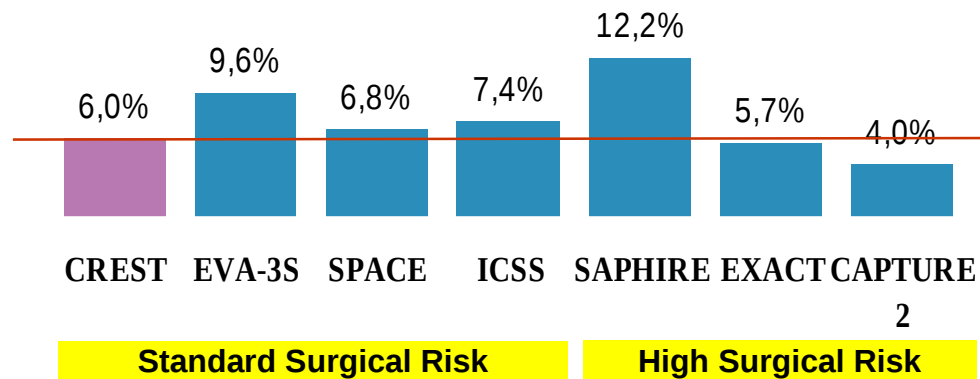
VOL. 363 NO. 1

Stenting versus Endarterectomy for Treatment of Carotid-Artery Stenosis

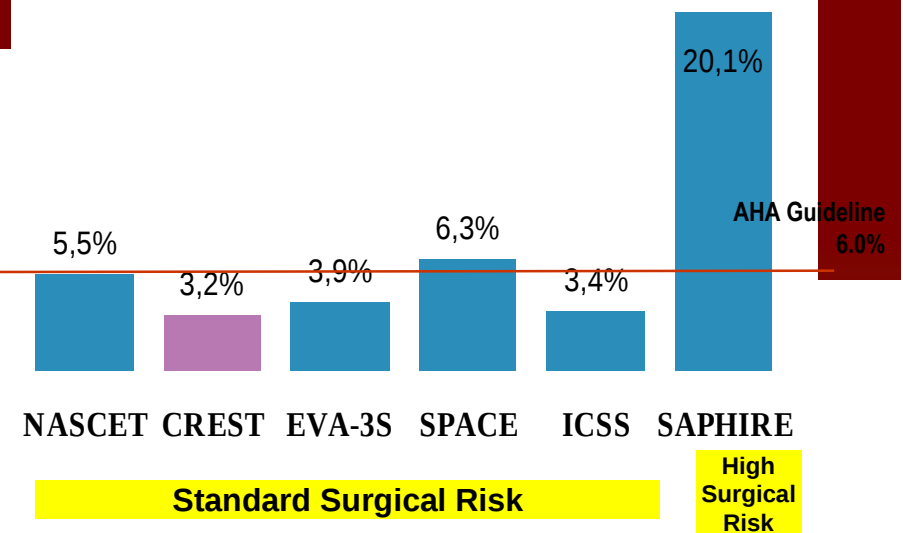
Thomas G. Brott, M.D., Robert W. Hobson, II, M.D.,* George Howard, Dr.P.H., Gary S. Roubin, M.D., Ph.D.,

Periprocedural Stroke/Mortality

CAS



CEA



Brott TG., et al. NEJM 2010

2012;43:3218-3224

Risk Prediction for Adverse Events After Carotid Artery Stenting in Higher Surgical Risk Patients

Neil J. Wimmer, MD; Robert W. Yeh, MD, MSc; Donald E. Cutlip, MD; Laura Mauri, MD, MSc

Death occurred in 123 patients (1.2%) and stroke in 301 (3.0%) within 30 days of CAS. A total of 366 patients had either stroke or death within 30 days. Two hundred forty-five strokes were ipsilateral (79.5% of strokes) and 276 were ischemic (91.7%). Lacunar strokes occurred in 33 subjects (11.9% of ischemic strokes). There were 25 hemorrhagic strokes.

10 186 patients

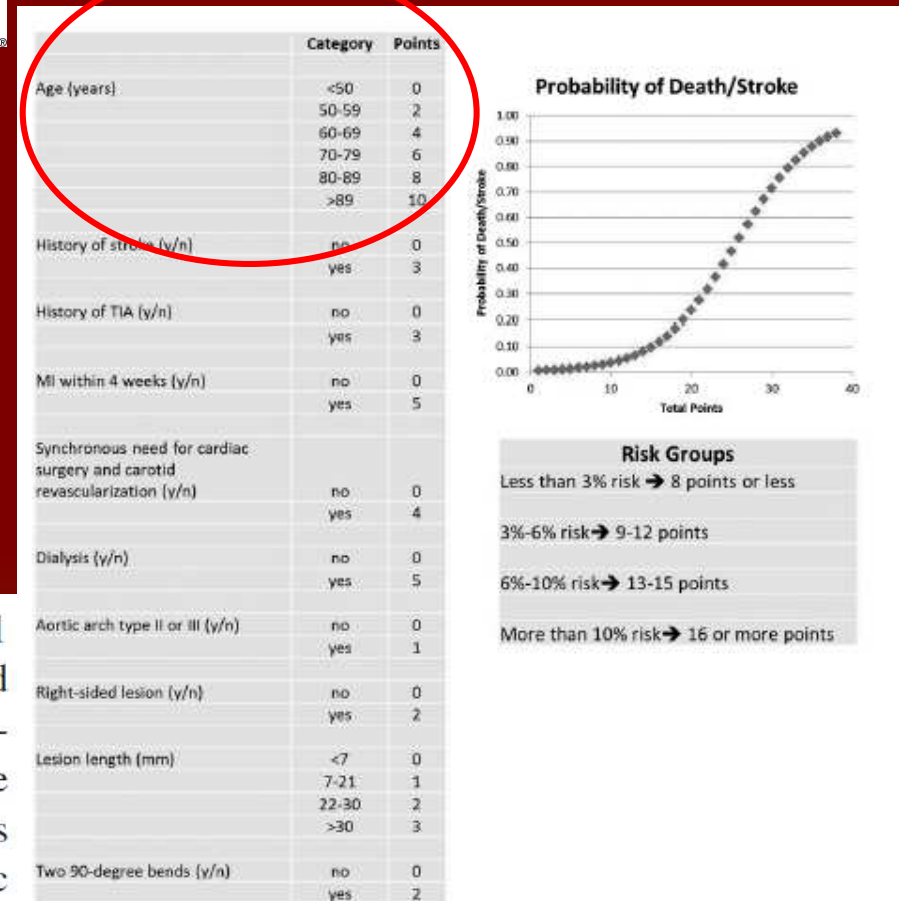


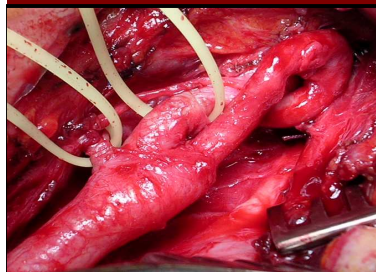
Figure 2. Bedside prediction tool for death or stroke at 30 days after carotid artery stenting. The total point score gives the predicted probability for death or stroke at 30 days according to the following equation:

Table 3. Final Logistic Regression Model for Death or Stroke at 30 D After Carotid Artery Stenting

Variable	Adjusted Beta	Adjusted OR	95% CI for Adjusted OR	P Value
Age per 10 y	0.417	1.520	1.32–1.81	<0.001

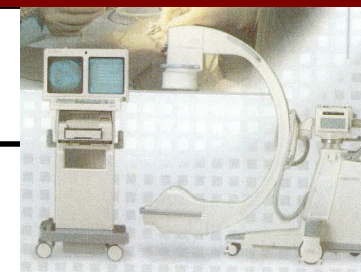
OUR EXPERIENCE

1/2003-1/2013



N° procedures 152 / 941 (16 %)

age (m.) 86 yy sex m 56 %



CEA : 35 p.

CAS : 117 p.

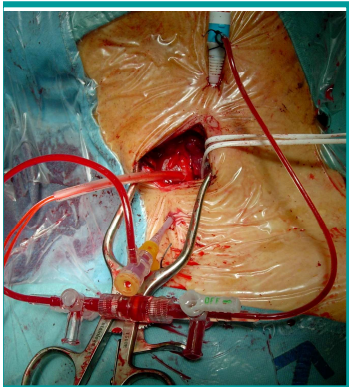
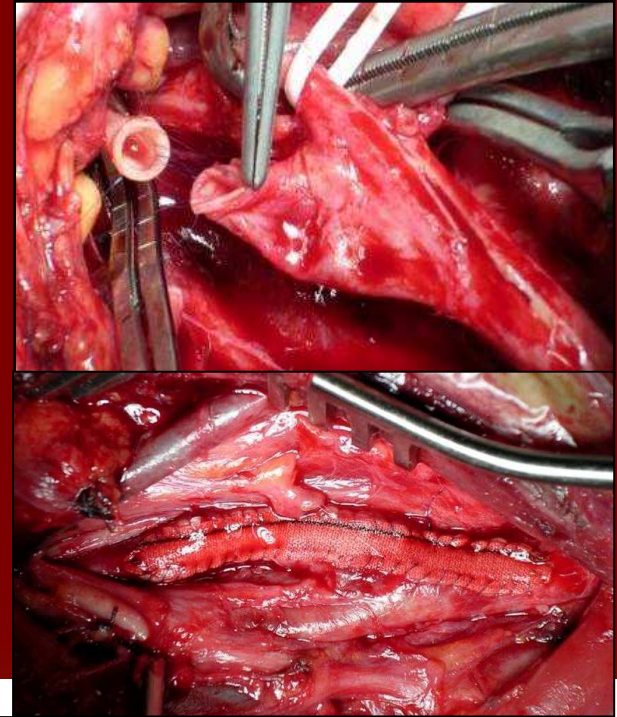
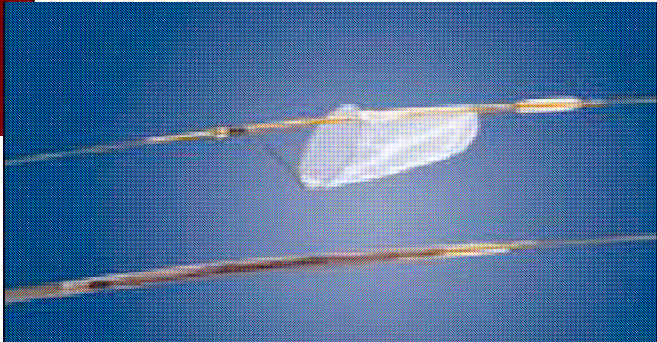
Exclusion criteria:

- cerebral hemorrhage (CT/MR)*
- dementia*
- brain cancer*

118 asymptomatic (77%)
34 symptomatic (< 6 months) (23%)

TECHNIQUES

- 35 CEA:**
- 2 SHUNT
 - 9 CHEVALIER
 - 25 STANDARD CEA
(7 direct, 16 dacron, 2 vein)
 - 1 CAROTID CAROTID by-pass

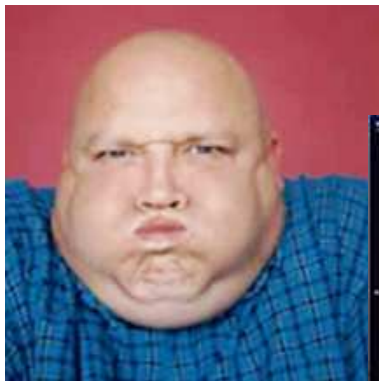
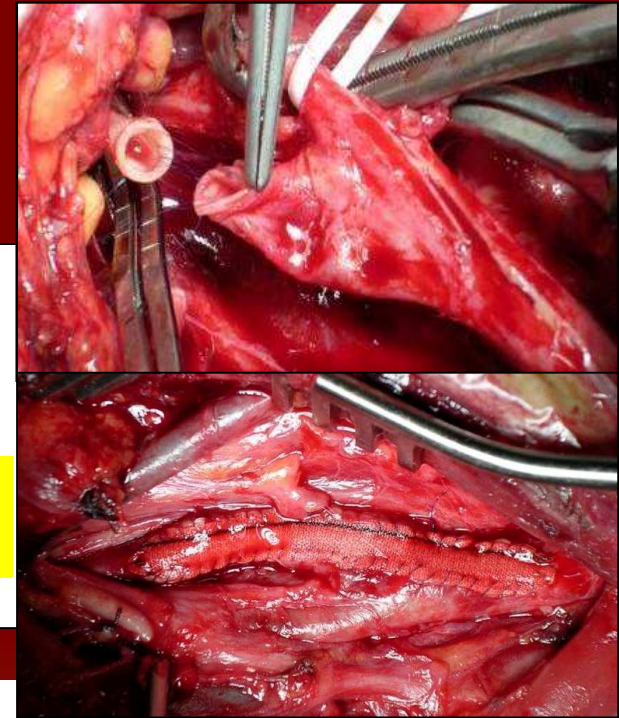
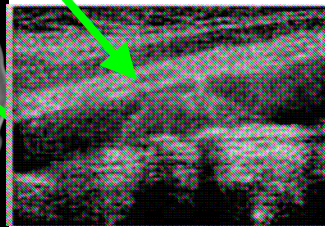
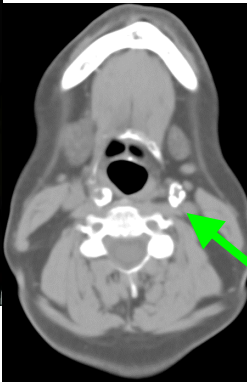


- 117 CAS:**
- 80 transfemoral (72 EPD e 8 Mo.Ma.)
 - 32 cervical (22 EPD e 10 sec. Criado)
 - 5 radial access

TECHNIQUES

CEA: - difficult anatomy (tortuosity, hostile arches)
- tight stenosis
- plaques (soft, calcified)

Common in elderly
Faggioli EJVS 2007



CAS: - hostile neck
- “high” bifurcation or distal plaque
- high surgical risk

P

AHA/ASA Guideline

Guidelines for Prevention of Stroke in Patients With Ischemic Stroke or Transient Ischemic Attack

A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association Council on Stroke

Co-Sponsored by the Council on Cardiovascular Radiology and Intervention

The American Academy of Neurology affirms the value of this guideline.

Ralph L. Sacco, MD, MS, FAHA, FAAN, Chair; Robert Adams, MD, FAHA, Vice Chair;
 Greg Albers, MD; Mark J. Alberts, MD, FAHA; Oscar Benavente, MD;
 Karen Furie, MD, MPH, FAHA; Larry B. Goldstein, MD, FAHA, FAAN;
 Philip Gorelick, MD, MPH, FAHA, FAAN; Jonathan Halperin, MD, FAHA;
 Robert Harbaugh, MD, FACS, FAHA; S. Claiborne Johnston, MD, PhD; Irene Katzan, MD, FAHA;
 Margaret Kelly-Hayes, RN, EdD, FAHA; Edgar J. Kenton, MD, FAHA, FAAN; Michael Marks, MD;
 Lee H. Schwamm, MD, FAHA; Thomas Tomsick, MD, FAHA

Neurological

ns

Cardiological Morbidity

3 (8.6%)

10 (8.5%)

ns

Stroke/Mortality

2 (5.7%)

3 (2.6%)

ns

CEA INDICATED IN PATIENTS WITH > 70% CAROTID STENOSIS, WITH MORBILITY/MORTALITY RISK < 6%

Periprocedural results in asymptomatic(118 pts.)

	<i>CEA</i>	<i>CAS</i>	
<i>Neurological Morbidity</i>	<i>1 (3.3%)</i>	<i>1 (1.1%)</i>	<i>ns</i>

SPREAD
Stroke Prevention And Educational Awareness Diffusion

RACCOMANDAZIONE 13.6 GRADO A:

L'intervento di endoarteriectomia in caso di stenosi carotidea asintomatica uguale o maggiore al 60% (valutata con il metodo NASCET) è indicato solo se il rischio operatorio (entro 1 mese dall'intervento) di complicanze gravi è particolarmente basso (almeno inferiore al 3%). Il beneficio, in termini di riduzione assoluta del rischio di ictus, è modesto (1% per anno) e aumenta con gli anni successivi di *follow-up*.

ns

Stroke/Mortality

LITERATURE REVIEW

CAS



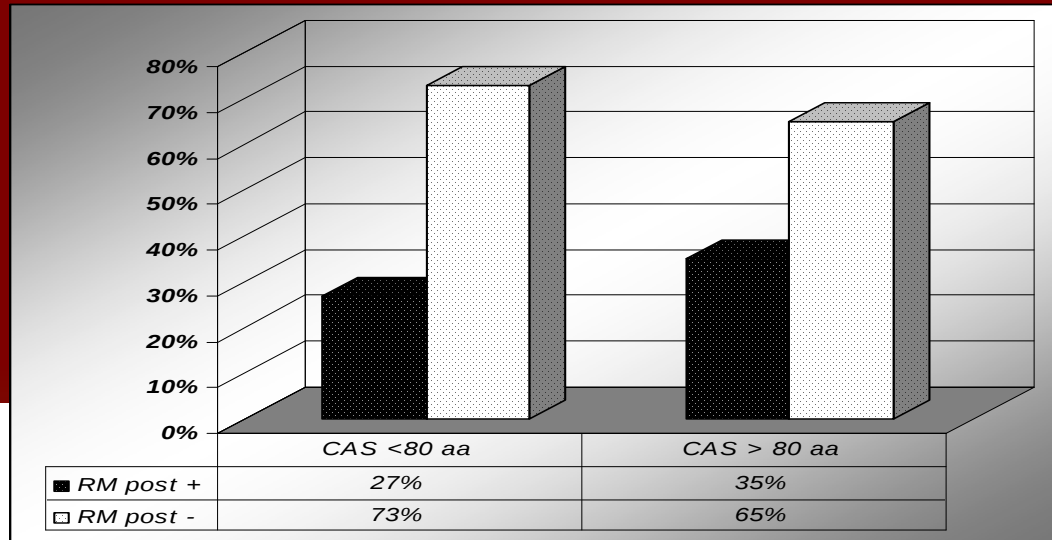
Chastain et al 1999	25%
Rubin et al 2001	16%
Hobson et al 2004	12%
Stanziale et al 2006	9%
Shawl et al 2000	3%
Nostro gruppo	2.6%

Hallet et al 1998	19%
Varghese et al 2004	8.8%
Ommer et al 2001	4%
Pruner et al 2003	3%
Wong et al 1998	2.8%
Nostro gruppo	5.7%

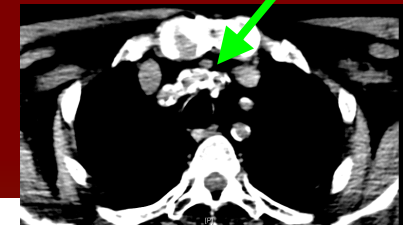


CEA

	CAS < 80 yy (468)	CAS > 80 ayy (117)	p?
stroke/mortality	11 (2.4%)	3 (2.6%)	ns



**RM p.o.POSITIVE:
27% vs 35% P:ns**



HYPOTHESIS:

VASCULAR ACCESS:

CERVICAL or TRANSRADIAL
for CALCIFICATION and hostile arches
for COMMON CAROTID TORTUOSITY

TYPE CEREBRAL PROTECTION: PROXIMAL (Mo.Ma. or inv. flow. Sec. Criado)
for “SOFT” PLAQUES (EMBOLIC RISK)

CONCLUSIONS

IN ELDERLY PATIENTS.....

- CAS FEASIBLE AND ACCEPTABLE
WITH SIMILAR RESULTS TO CEA
- ENDOVASCULAR IS COMPLEMENTARY
TO SURGERY TO OPTIMIZE THE
RESULTS



DANKE

