CEA versus CAS

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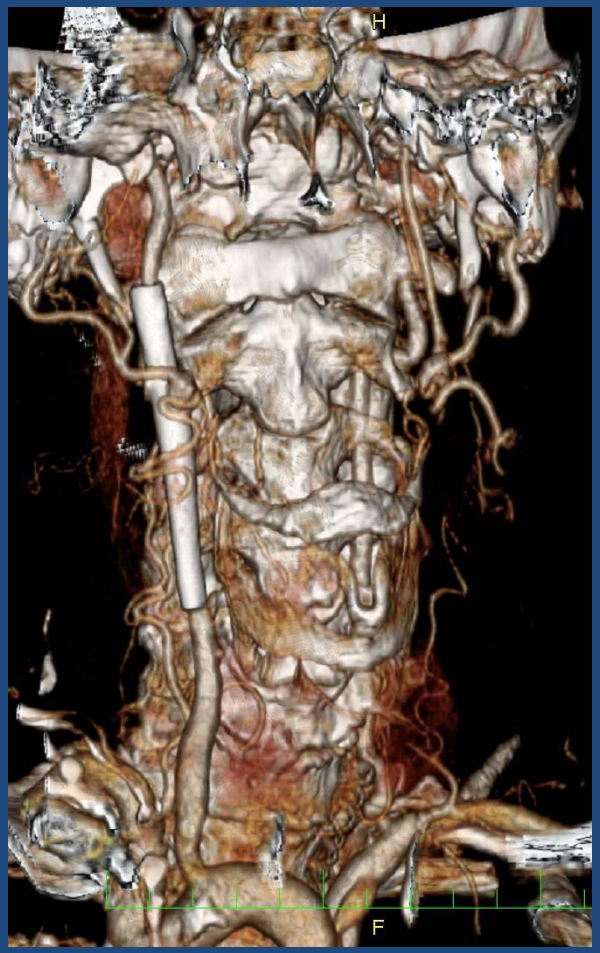
XXVI. Výroční sjezd České kardiologické společnosti

Brno, 6. – 9. května 2018


prava karotida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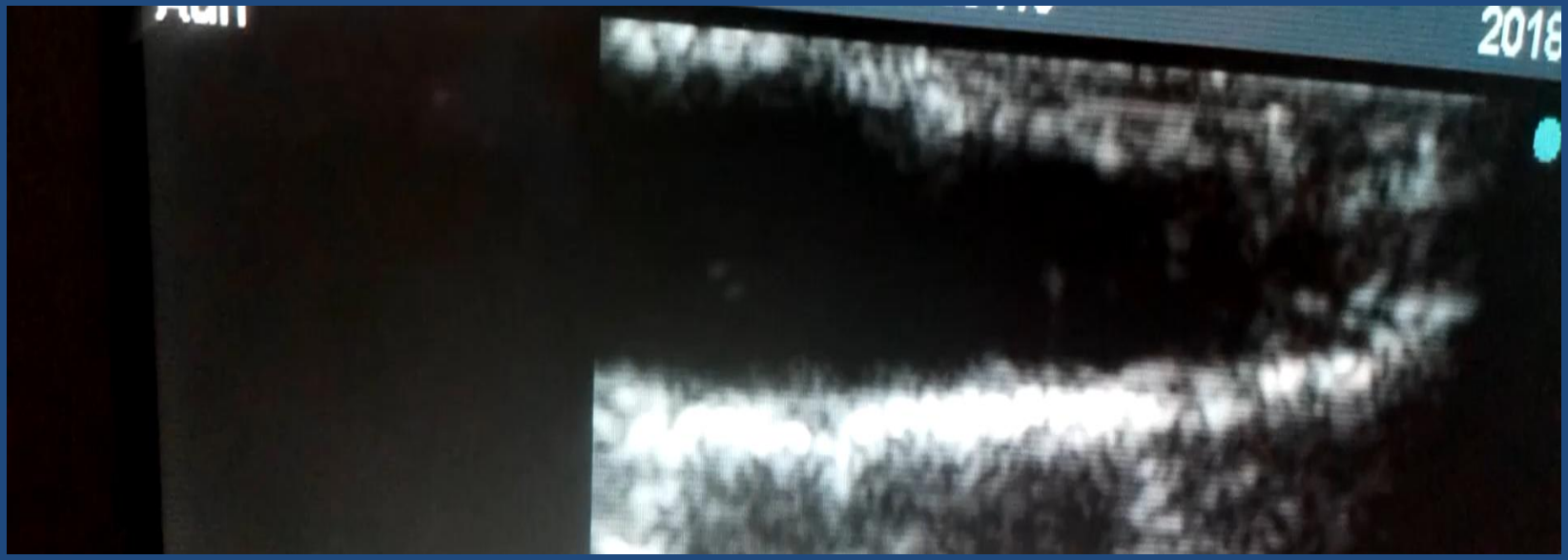
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Článek
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Autor: Josef Veselka

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K doručení do našich knihkupectví v Praze

1

DO KOŠÍKU

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MEGA AKCE

PŘEKROČ TEN STÍN

NEKŘIČ PRO STENT

CMP

- Evropa 1,4 mil. (715 mil.obyvatel) / rok
- 1,1 mil. úmrtí / rok
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- 2. nejčastější příčina smrti
- polovina nemocných je invalidních
- nemocní obsadí 1/5 akutních a ¼ chronických lůžek
- léčebné výdaje 38 mld. E,- / rok

CMP – Etiologie I

- 2/3 CMP důsledkem tromboembolismu
- 1/3 CMP důsledkem postižení EC tepen
- 1/3 CMP u nemocných mladších 65 let

CMP – Etiologie II.

- TE příhoda z povodí ACI (ACM) 25 %

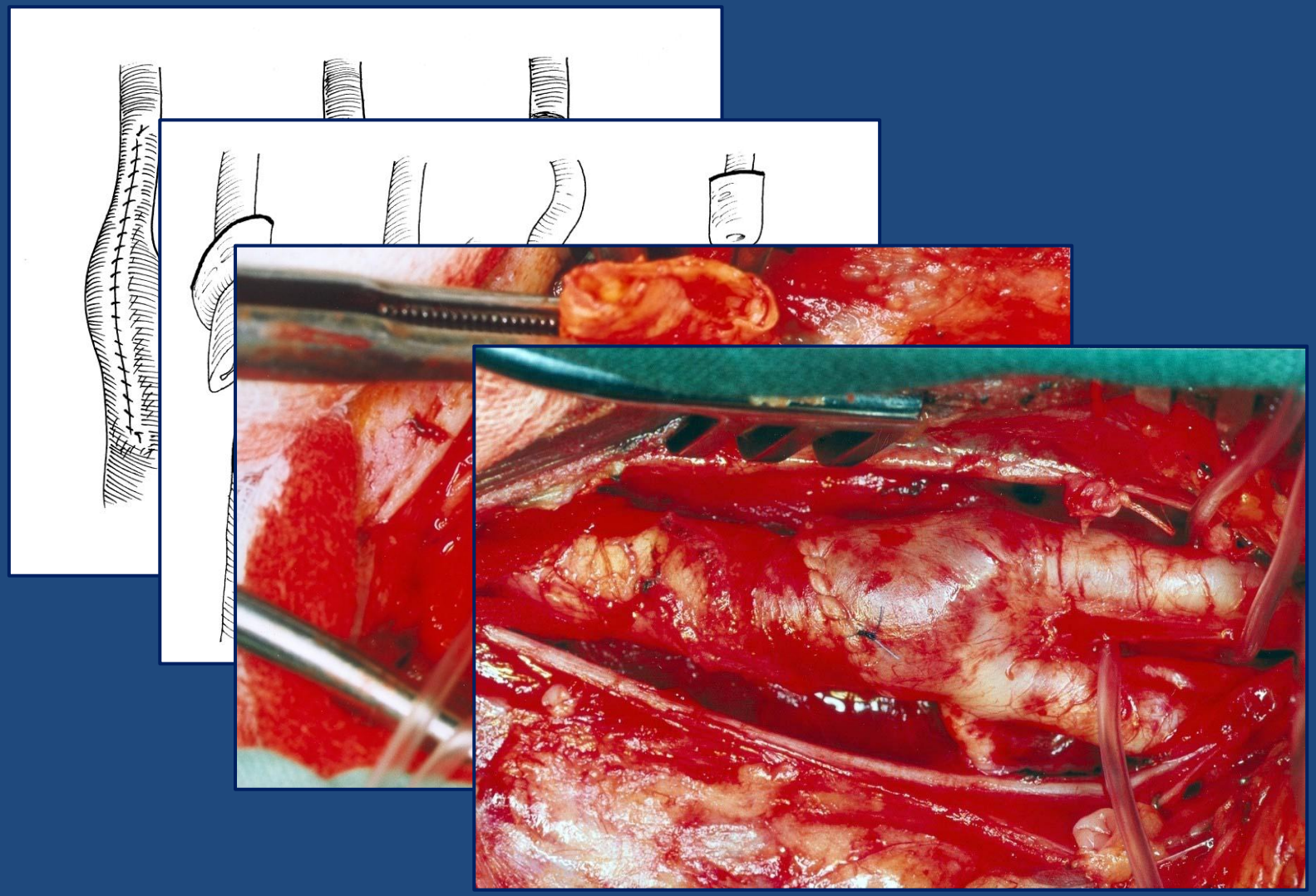
- Trombóza intrakraniálních malých cév 25 %
- Embolie kardiálního původu 20 %
- Neobjasněné a další příčiny 30 %

- TE příhoda z dosud asymptomatické ACI stenosy nad 50 % 15 %

Co vneslo posledních 20 let do terapie karotických stenóz ?

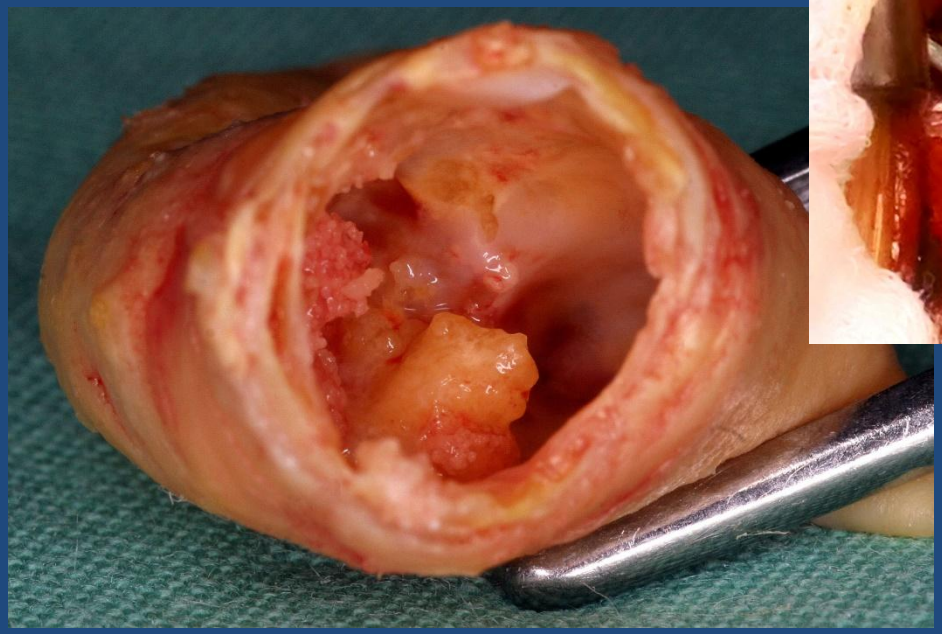
- 1. Moderní medikamentózní prevenci a léčbu (duální antiagregace, statiny),
- 2. Výrazný rozvoj stentingu (mnohdy bez oborových hranic),
- 3. Bezpečnou lokoregionální anestezii a větší variační šíři operačních technik.

Princip a technika CEA



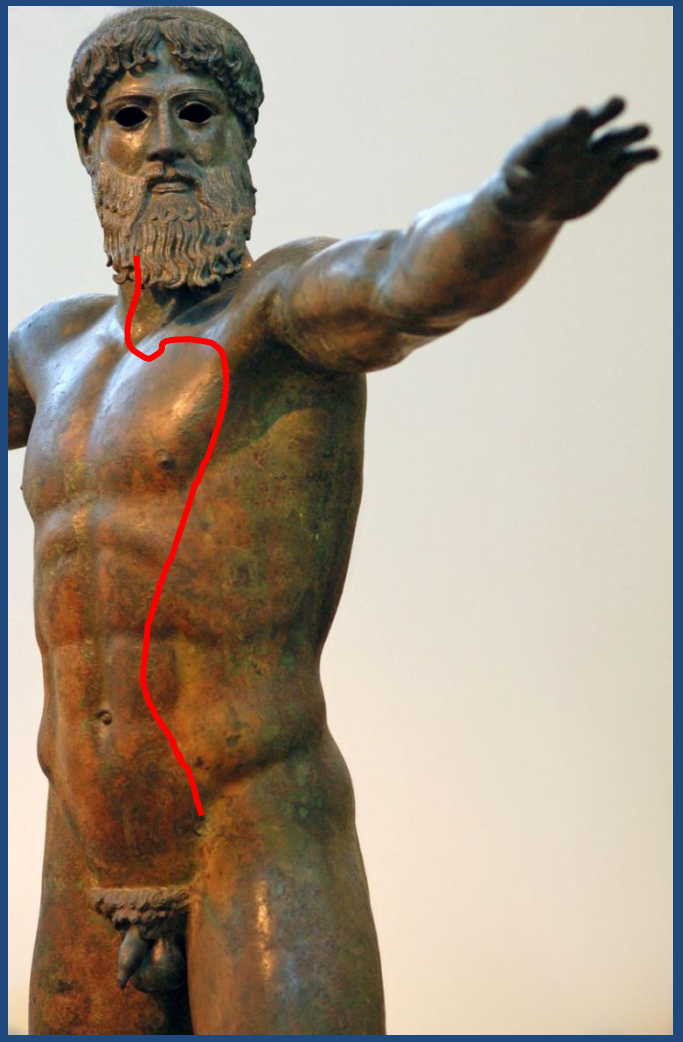
Co svědčí pro operaci ?

- 1. Logika procedury



- 2. Šetrnost operačního přístupu

- 3. Kratší a bezpečnější cesta k cíli



Kortikální a subkortexové léze (NMR)

- 1 ložisko CAS 15 % vs. CEA 8 %
- 5 a více ložisek CAS 16 % vs. CEA 4 %

- Užití EPD zvýšilo počet embolizačních ložisek

Gensicke H.et al.: Characteristics of ischemic brain lesions after stenting or endarterectomy for symptomatic carotid artery stenosis. Stroke 2013;44:80-86

KLINIKUM CHEMNITZ gGmbH
Krankenhaus der Maximalversorgung
Akademisches Lehrkrankenhaus der Universitäten Leipzig und Dresden

Klinikum Chemnitz gGmbH / Flemmingstraße 2 / 09116 Chemnitz

To: Cordis, Boston Scientific, Gore, Abbott Vascular, etc.

To whom it may concern

Ihre Nachricht	Ihr Zeichen	Unser Zeichen	Datum

Dear Madam/Sir,

Based on the results of the recent literature review cited underneath, let me suggest to consider , as a new concept in your marketing strategy , the eventual renaming of your awesome

Embolic Protection Devices (known as EPDs) to **Embolic Causing Devices (ECDs).**

Thereafter, a steep increase in the market turnover is to be expected: However, my proper personal demands would be satisfied with, let´s say, 5 % of the total annual pure income.

I shall impatiently await your kind (and positive!) reply.

Yours sincerely,

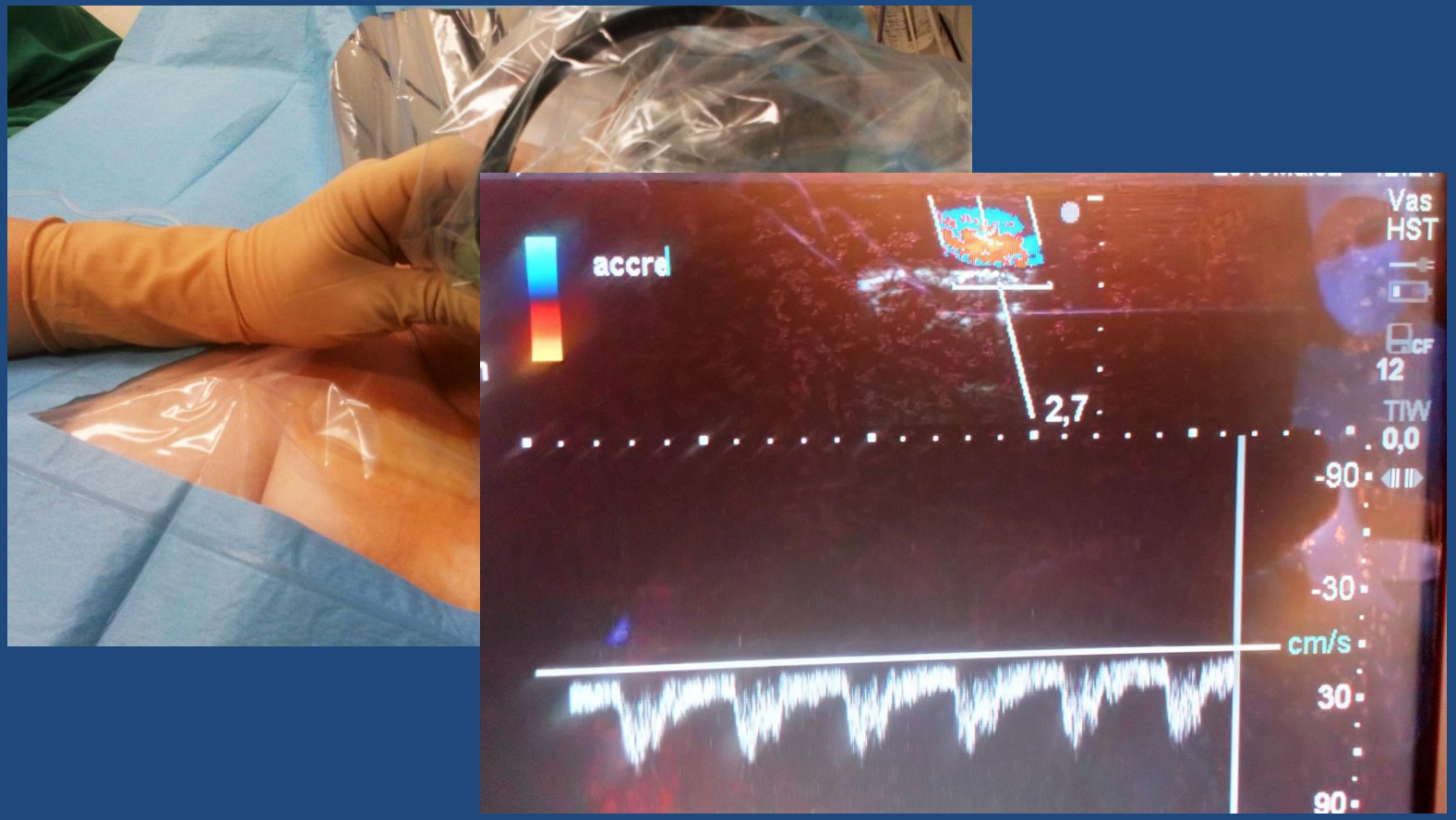
Assoc.Prof.Pavel Šebesta,MD,PhD

Klinikum Chemnitz, GgmbH, Germany

Literature:

Gensicke,H. et al.: Characteristics of Ischemic Brain Lesions After Stenting or Endarterectomy for Symptomatic Carotid Artery Stenosis. Stroke, 2013;44:80-86

- 4. Snižování operačního rizika



- 5. 60 let zkušeností
- 6. Trvanlivost výsledku:

  Prevalence restenosy:

  metaanalýza 11 RCTs

  CEA 4,1 % CAS 10,0 % (p = 0,007)

Kumar R.et al.: Restenosis after carotid interventions and its relationship with recurrent ipsilateral stroke: a systematic review and meta-analysis. Eur J Vasc Endovasc Surg 2017;53:766-75

- 7. Náklady per- i postprocedurální

Co operaci znevýhodňuje ?

- 1. Riziko pooperačního hematomu s deviací trachey
- 2. Druhostranná paresa n.recurrens

Ostatní kontraindikace jsou relativní

- závažné komorbidity
- nepříznivá anatomie („hostile neck“, kontralaterální uzávěr ACI)

High-risk CEA není Low-risk CAS !

- Riziko CAS stoupá s věkem

Death/stroke/MI risk u „high-risk“ symptomatických nemocných:
CAS 9,1 % CEA 7,3 % (p = 0,11)

Zásadní indikační otázka= life expectancy ?

Schemerhorn,ML et al.: The impact of Centers for Medicare and Medicaid Services high-risk criteria on outcome after carotid endarterectomy and carotid artery stenting in the SVC Vascular Registry. J Vasc Surg 2013;57:1318-24

CEA vs. CAS I. – metaanalýzy RCTs

Systematic review

BJS 2018

Meta-analysis of the procedural risks of carotid endarterectomy and carotid artery stenting over time

K. Lokuge[1], D. D. de Waard[3,4], A. Halliday[3], A. Gray[1], R. Bulbulia[2] and B. Mihaylova[1]

[1]Health Economics Research Centre, and [2]Medical Research Council Population Health Research Unit, Clinical Trial Service Unit and Epidemiological Studies Unit, Nuffield Department of Population Health, and [3]Nuffield Department of Surgical Sciences, University of Oxford, Oxford, UK, and [4]Department of Vascular Surgery, University Medical Centre Utrecht, Utrecht, The Netherlands

Correspondence to: Professor B. Mihaylova, Health Economics Research Centre, Nuffield Department of Population Health, University of Oxford, Old Road Campus, Oxford OX3 7LF, UK (e-mail: boby.mihaylova@dph.ox.ac.uk)

Background: Stroke/death rates within 30 days of carotid endarterectomy (CEA) and carotid artery stenting (CAS) in RCTs inform current clinical guidelines. However, the risks may have changed in recent years with wider use of effective stroke prevention therapies, especially statins, improved patient selection and growing operator expertise. The aim of this study was to investigate whether the procedural stroke/death risks from CEA and CAS have changed over time.

Methods: MEDLINE and Embase were searched systematically from inception to May 2016 for observational cohort studies of CEA and CAS. Studies included reported on more than 1000 patients, with 30-day outcomes after the procedure according to patients' symptom status (recent stroke or transient ischaemic attack). Restricted maximum likelihood random-effects and meta-regressions methods were used to synthesize procedural stroke/death rates of CEA and CAS according to year of study recruitment completion.

Results: Fifty-one studies, including 223 313 patients undergoing CEA and 72 961 undergoing CAS, were reviewed. Procedural stroke/death risks of CEA decreased over time in symptomatic and asymptomatic patients. Risks were substantially lower in studies completing recruitment in 2005 or later, both in symptomatic (5·11 per cent before 2005 *versus* 2·68 per cent from 2005 onwards; $P = 0·002$) and asymptomatic (3·17 *versus* 1·50 per cent; $P < 0·001$) patients. Procedural stroke/death rates of CAS did not change significantly over time (4·77 per cent among symptomatic and 2·59 per cent among asymptomatic patients). There was substantial heterogeneity in event rates and recruitment periods were long.

Conclusions: Risks of procedural stroke/death following CEA appear to have decreased substantially. There was no evidence of a change in stroke/death rates following CAS.

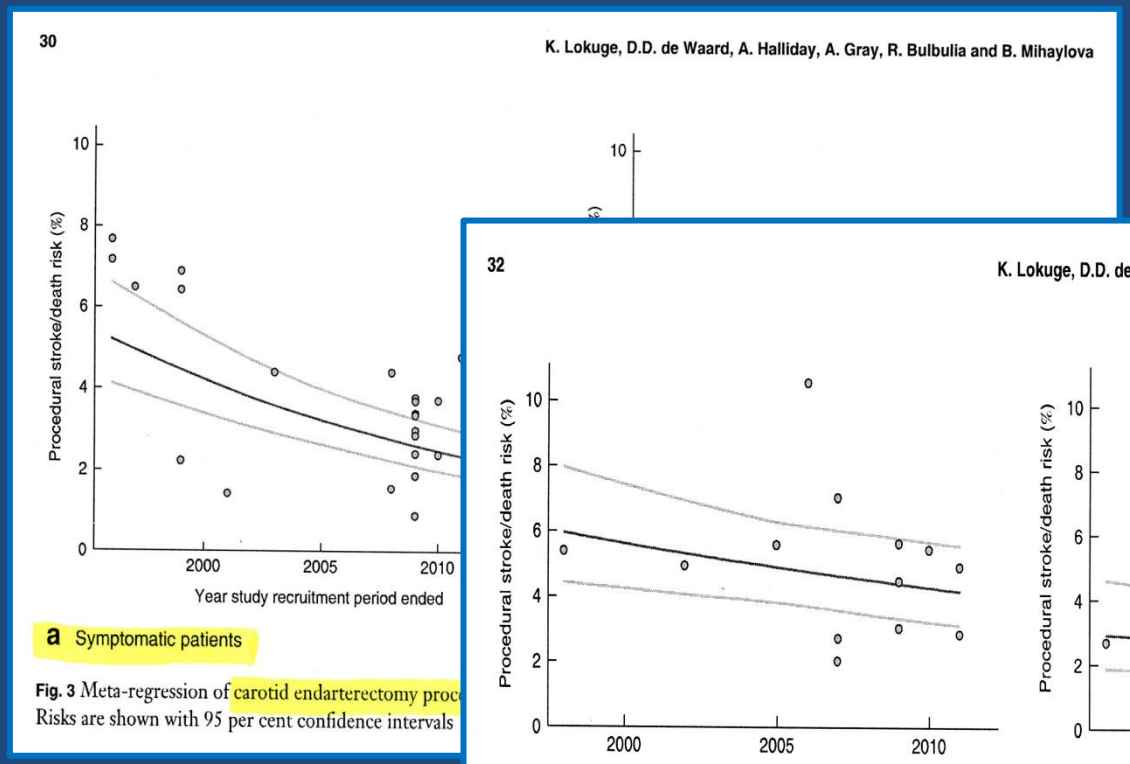
Paper accepted 2 September 2017

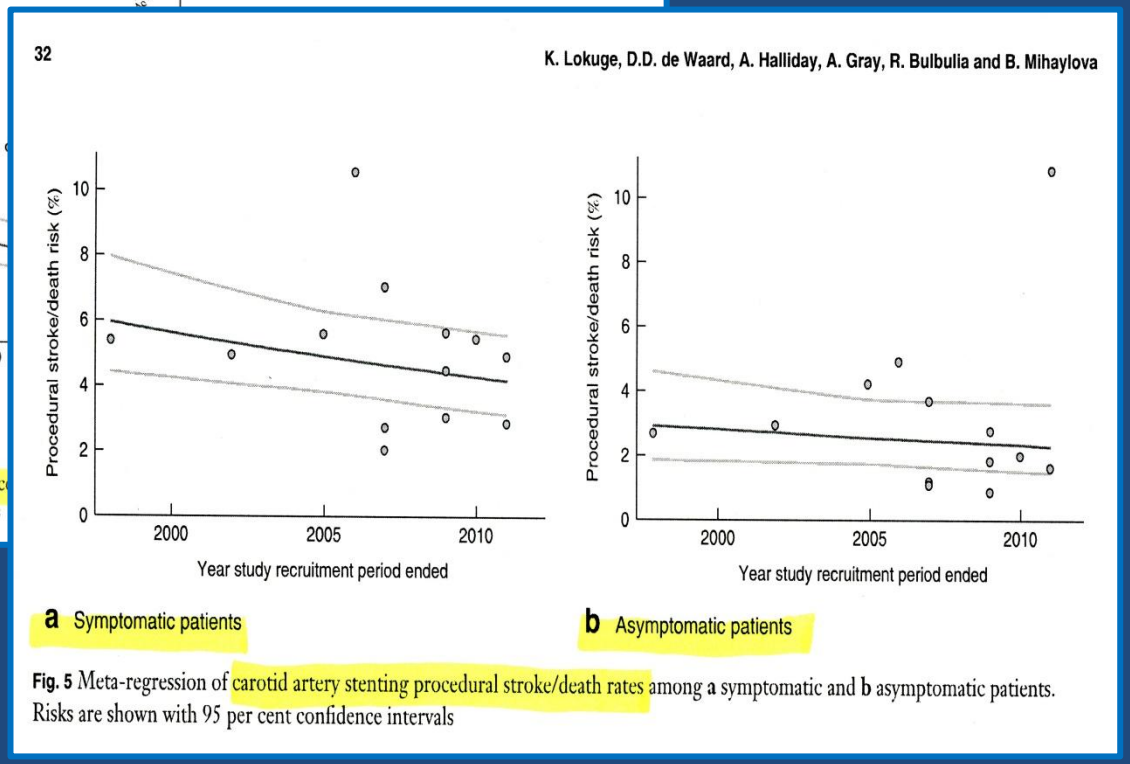
Published online 4 December 2017 in Wiley Online Library (www.bjs.co.uk). **DOI:** 10.1002/bjs.10717

51 RCTs (od 2005) 223 313 CEA, 72 961 CAS

Podstatné snížení rizika periprocedurální CMP/smrti u CEA, nikoli u CAS

CEA vs. CAS I. – metaanalýzy RCTs





CEA vs.CAS II.- metaanalýzy RCTs

Table 1. Results from large randomized trials of CEA vs. CAS

Name	Number	EPD use, %	Periprocedural* D/S		p value	Periprocedural D/S/MI		p value
			CEA, %	CAS, %		CEA, %	CAS, %	
CAVATAS [6], 2001	504	0	5.9	6.4	0.8	NA	NA	NA
SAPPHIRE [8], 2004	334	95.6	8.4	5.5	0.36	20.2	12.2	0.004
SPACE [10], 2006	1,200	27	6.3	6.8	0.09	NA	NA	NA
EVA-3S [11], 2008	527	91.9	3.9	9.6	0.01	NA	NA	NA
ICSS [13], 2010	1,713	72	4.7	8.5	0.001	5.2	8.5	0.006
CREST [17], 2010	2,502	96.1	2.3	4.4	0.005	6.8	7.2	0.51

D/S = Death or stroke; D/S/MI = death, stroke or MI; NA = not available.
* Periprocedural period was defined in most studies as the 30 days after the intervention.

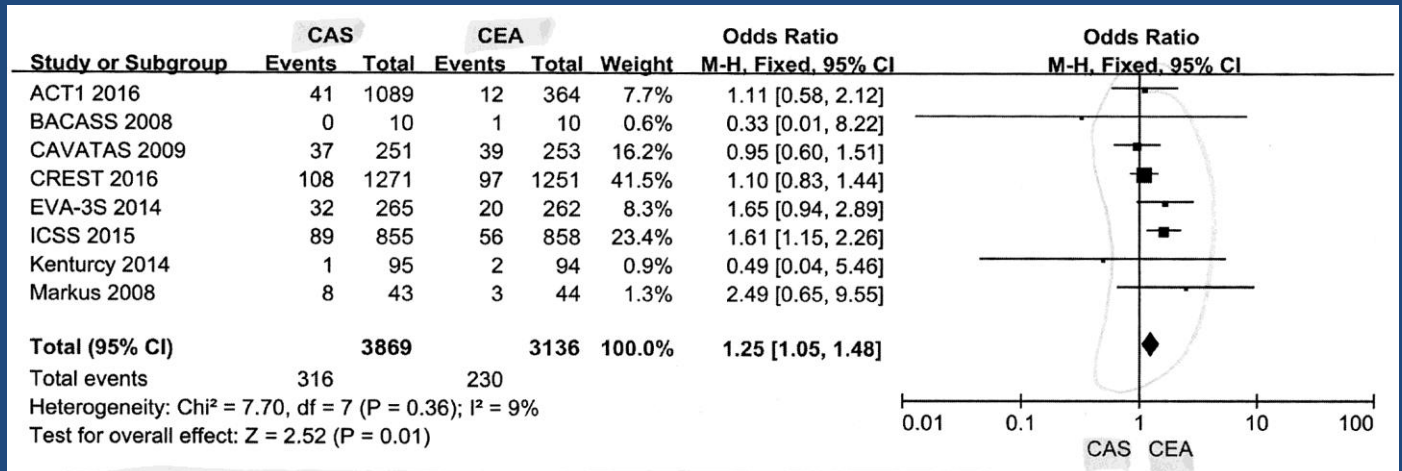


Fig 4. The cumulative incidence of the composite endpoint of death, ipsilateral stroke or periprocedural stroke. CAS: Carotid Artery Stenting; CEA: Carotid Endarterectomy; ACT I: Asymptomatic Carotid Trial I; CREST: Carotid Revascularization Endarterectomy vs. Stenting Trial; ICSS: International Carotid Stenting Study; EVA-3S: Endarterectomy Versus Angioplasty in Patients with Symptomatic Severe Carotid Stenosis; BACASS: Basel Carotid Artery Stent Study; CAVATAS: Carotid and Vertebral Artery Transluminal Angioplasty Study; Odd Ratio: adopted per 100 patient-years odd ratio.

CEA vs. CAS III.- metaanalýzy RCTs

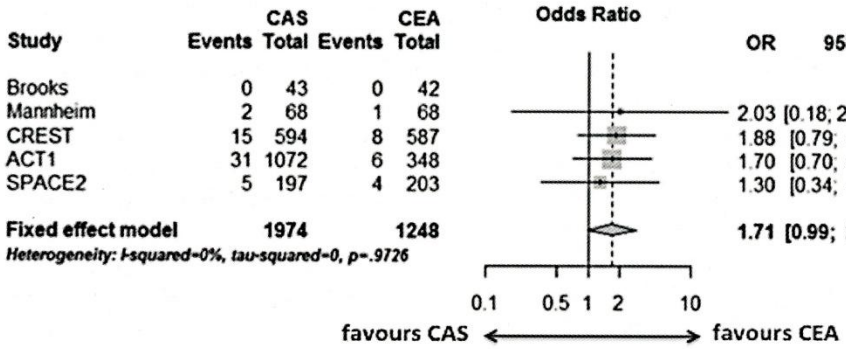


Figure 4. Forest Plot comparing 30-day death/stroke in four randomised trials comparing carotid endarterectomy and carotid artery stenting in asymptomatic patients.

5 RCts, 3222 pacientů: Death/stroke CEA 1,6 % vs. CAS 2,7 % (p= 0,0553)

Recommendation 48	Class	Level	References
In recently symptomatic patients with 50–99% stenoses and anatomical and/or medical comorbidities that are considered by the multidisciplinary team to make them "higher-risk for carotid endarterectomy," carotid stenting should be considered as an alternative to endarterectomy, provided the documented procedural death/stroke rate is <6%	IIa	B	104,105,189,198

ESVS Guidelines (2017)

Recommendation 35	Class	Level	References
Carotid endarterectomy is recommended in patients reporting carotid territory symptoms within the preceding 6 months and who have a 70–99% carotid stenosis, provided the documented procedural death/stroke rate is <6%	I	A	172–174,205
Recommendation 36			
Carotid endarterectomy should be considered in patients reporting carotid territory symptoms within the preceding 6 months and who have a 50–69% carotid stenosis, provided the documented procedural death/stroke rate is <6%	IIa	A	172–174,205
Recommendation 37			
It is recommended that most patients who have suffered carotid territory symptoms within the preceding 6 months and who are aged >70 years and who have 50–99% stenoses should be treated by carotid endarterectomy, rather than carotid stenting	I	A	196
Recommendation 38			
When revascularisation is indicated in patients who have suffered carotid territory symptoms within the preceding 6 months and who are aged <70 years, carotid stenting may be considered an alternative to endarterectomy, provided the documented procedural death/stroke rate is <6%	IIb	A	196
Recommendation 39			
Carotid endarterectomy or carotid stenting are not recommended in symptomatic patients with a chronic internal carotid near-occlusion, unless associated with recurrent ipsilateral symptoms (despite optimal medical therapy) and following multidisciplinary team review	III	C	172

ESVS Guidelines (2017)

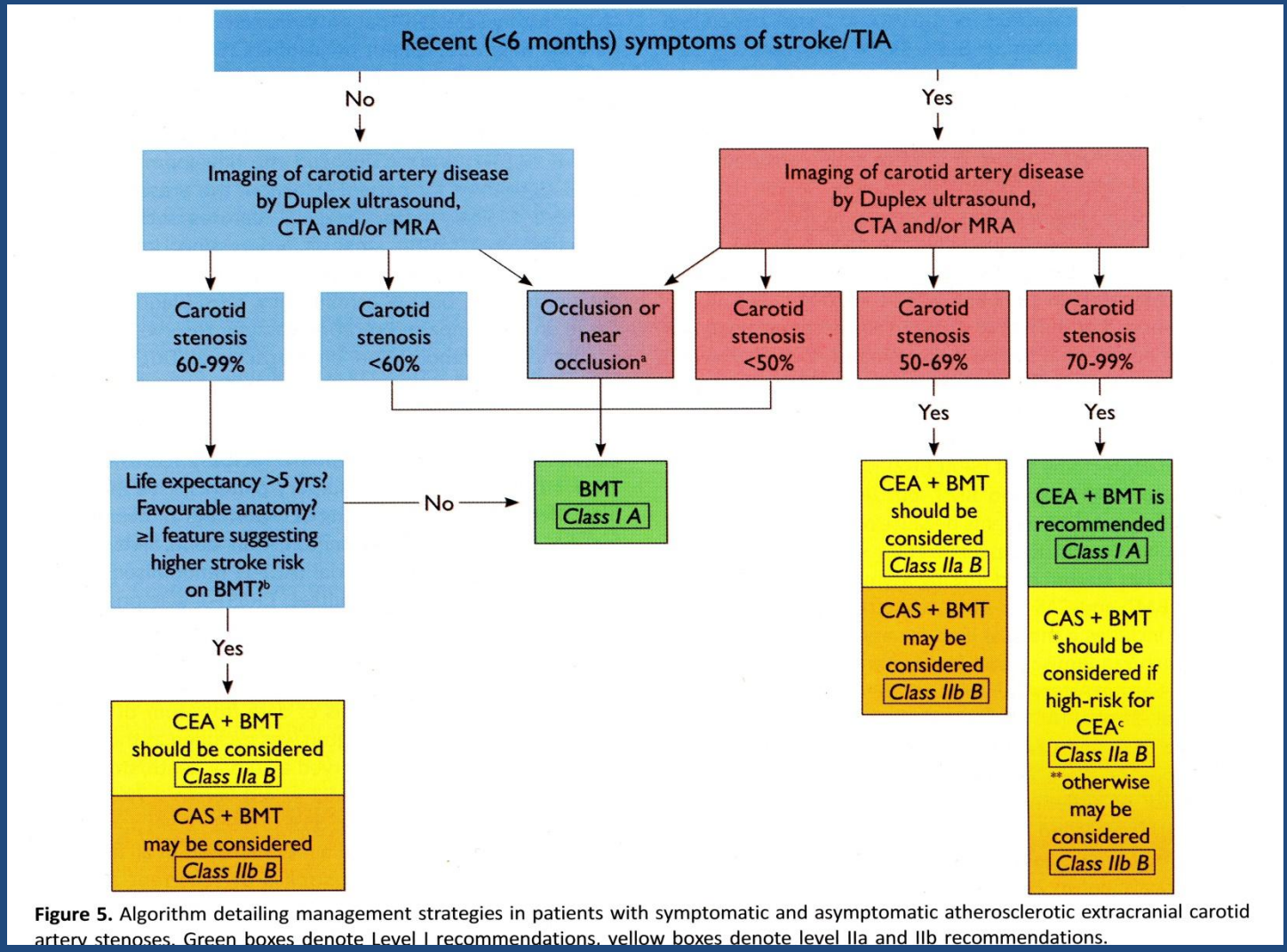


Figure 5. Algorithm detailing management strategies in patients with symptomatic and asymptomatic atherosclerotic extracranial carotid artery stenoses. Green boxes denote Level I recommendations, yellow boxes denote level IIa and IIb recommendations.

CEA vs.CAS IV- shrnutí metaanalýz

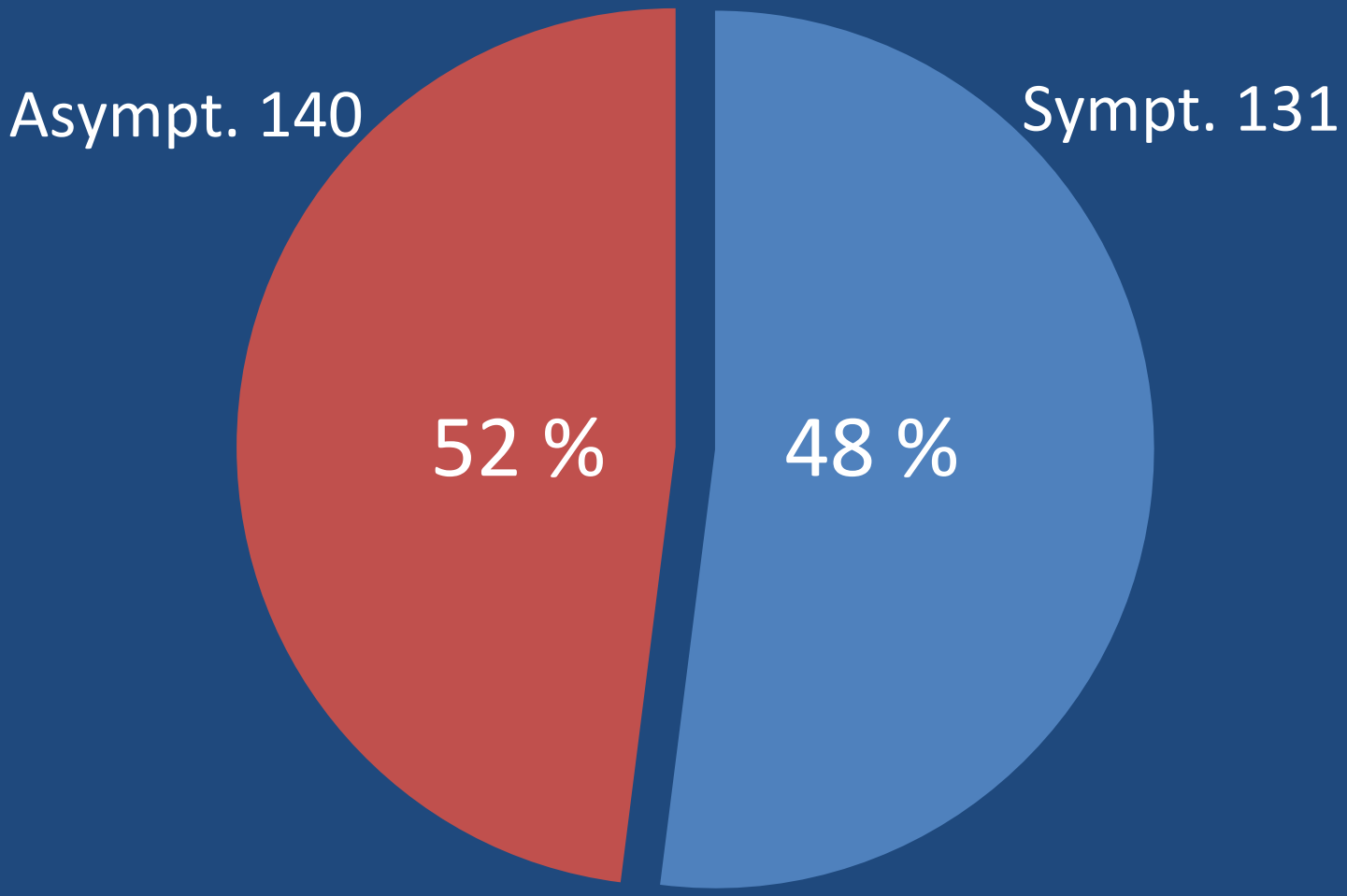
CAS:	30d. stroke/death risk	5,0% (2006-2010)
		4,3% (2011-2015)
CEA superiority:		30 d. (-10 let) stroke/death
		30 d. TIA
		1 r. restenosa
CEA inferiority:		30 d. IM (?)
		1 r. stroke/death

Kritika kritiky

- „Toleranční patent“ současných guidelines je příliš benevolentní ! (AHA/ESVS kritéria death/stroke rate 3 % asympt., 6 % sympt.),
- Požadavek minima 6 CAS ročně/lékaře je ultraminimální,
- Evidence-based medicine nahlížet i ve smyslu Common-sense medicine a snažit se čelit soustředěnému tlaku tzv. „industry“.

Paraskevas,KI,Ricco,JB, Veith,FJ: Seeing light and shadows. A commentary on the 2017 ESVS carotid guidelines. J Vasc Surg 2018 Feb;67(2),646-648

CEA Klinikum Chemnitz 2016-2017



Soubor	n	%
• Eversní TEA	225	83
• TEA + patch	46	19
• Ostatní	7	2,6
• i.l. shunt	25	9
• Pooperační revize (krvácení)	7	2,6
• Časný uzávěr ACI	1	0,4
• CMP lehká	5	1,8
• CMP těžká	3	1,1
• CMP celkem	8	3,0
• Letalita hospitalizační	1	0,4
• Letalita 30-denní	3	1,1

Závěr

- CEA si nadále drží pozici standardního postupu v léčbě karotických stenóz. CAS by měl být indikován uvážlivě ve specifických klinických situacích a neměl by se stát rutinním nástrojem v rukou technokratů. Možná komplementarita obou metod však často koliduje s absencí komunikace mezi odbornostmi. Další informace a klinická vodítka přinesou výsledky studií srovnávajících CEA/CAS s BMT.

Děkuji vám za pozornost