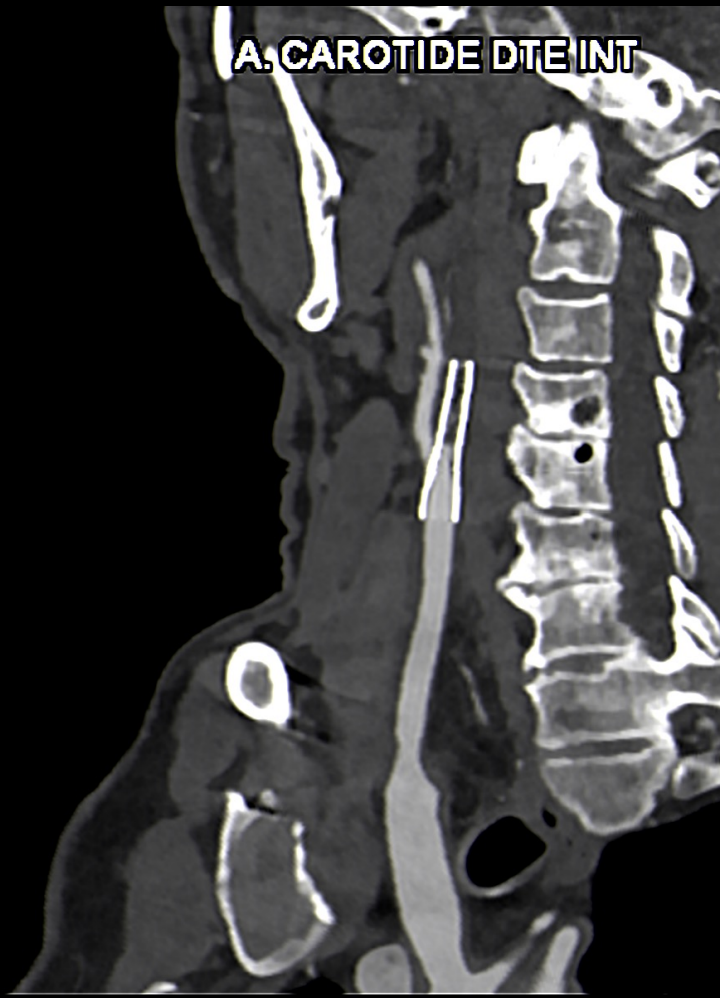


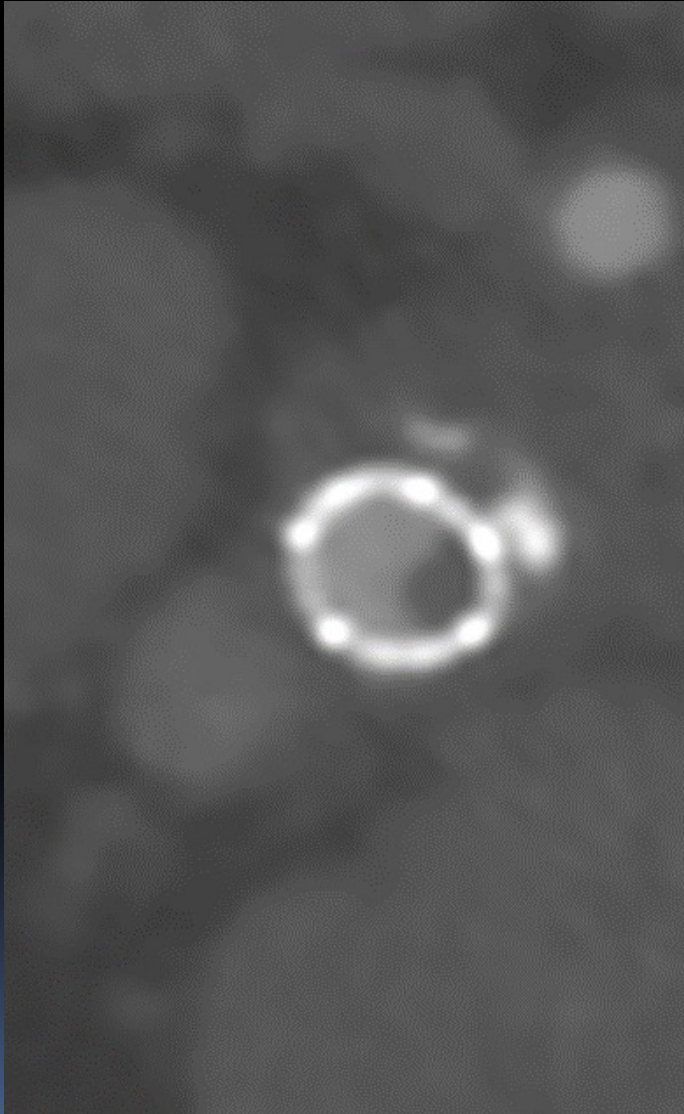
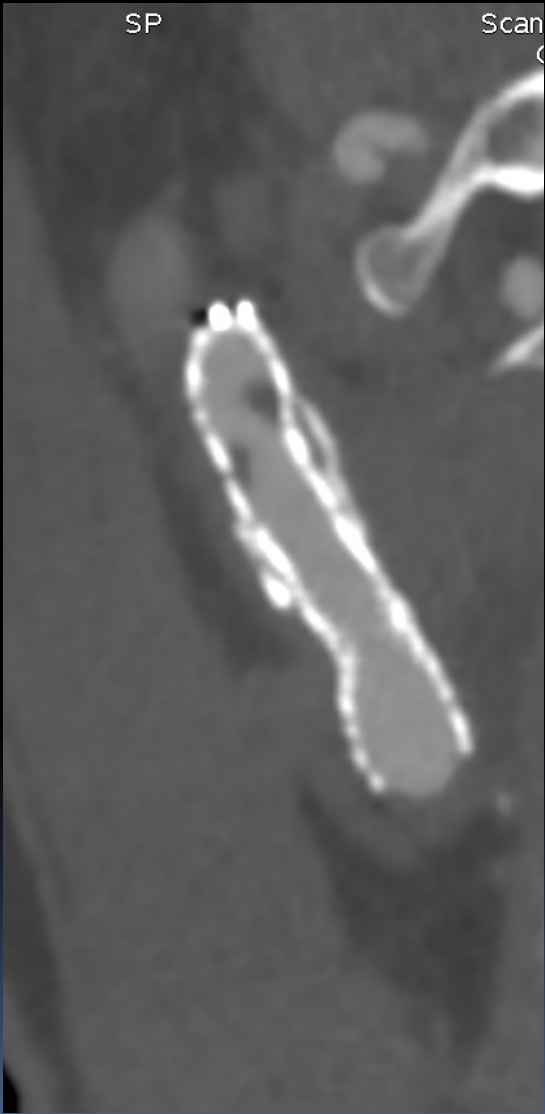
PONT CAROTIDE GAUCHE



A. CAROTIDE DTE INT



A

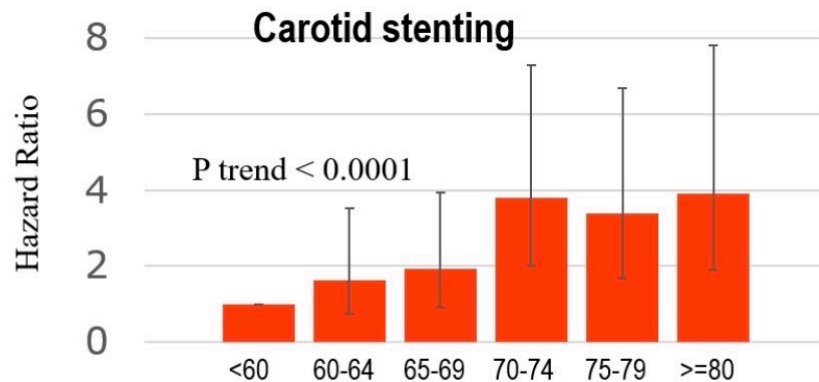
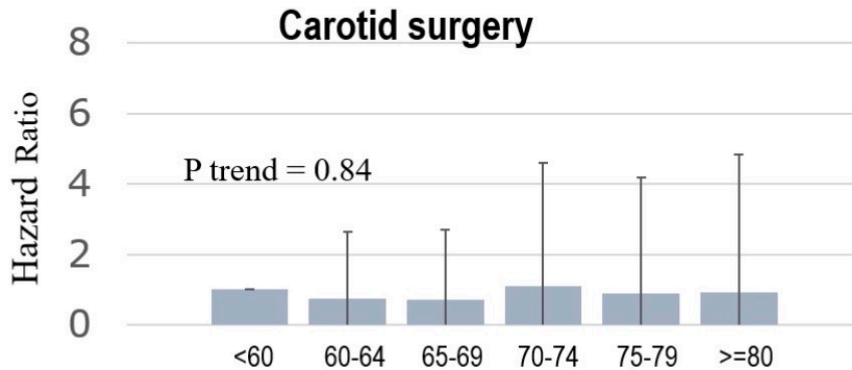


Indications angioplasties carotidiennes

- Resténoses par hyperplasie néo-intimale
- Coud « hostiles » :
 - Chirurgie ORL préalable
 - Blocage cervical : arthrose, SPAnkylosante
- Sténoses radicales
- Contre-indications générales à la chirurgie (espérance de vie > 5 ans?)
- Age?
- Contre-indications clampage carotidien?
 - Occlusions contro-latérale ou intra-cérébrale

Age and procedural risk of stroke or death

CSTC analysis (4 trials)



Howard, Lancet 2016

Effet de l'âge concentré sur la période procédurale chez les patients traités par stenting

Periprocedural stroke or death

65-69 vs. <60 : HR = 2.2

>70 vs. <60 : HR = 4.0

European Society for Vascular Surgery (ESVS) 2023 Clinical Practice Guidelines on the Management of Atherosclerotic Carotid and Vertebral Artery Disease

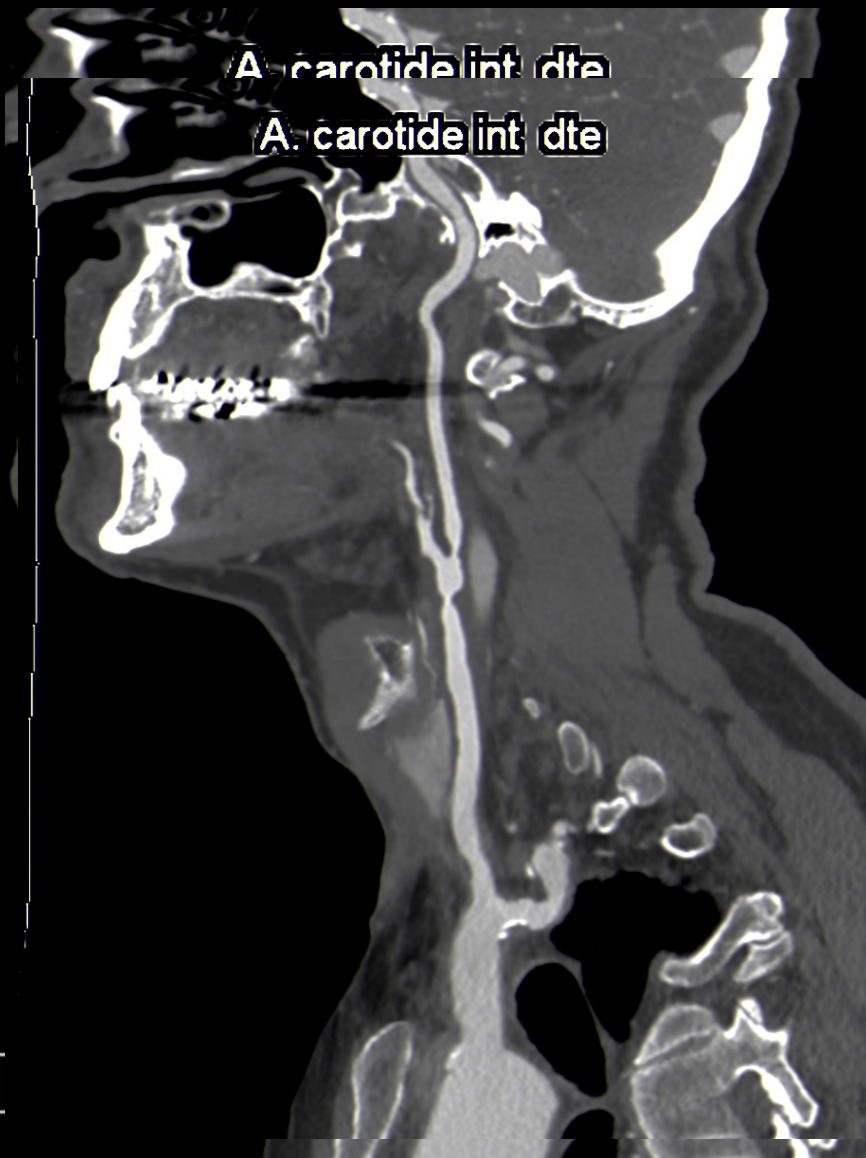
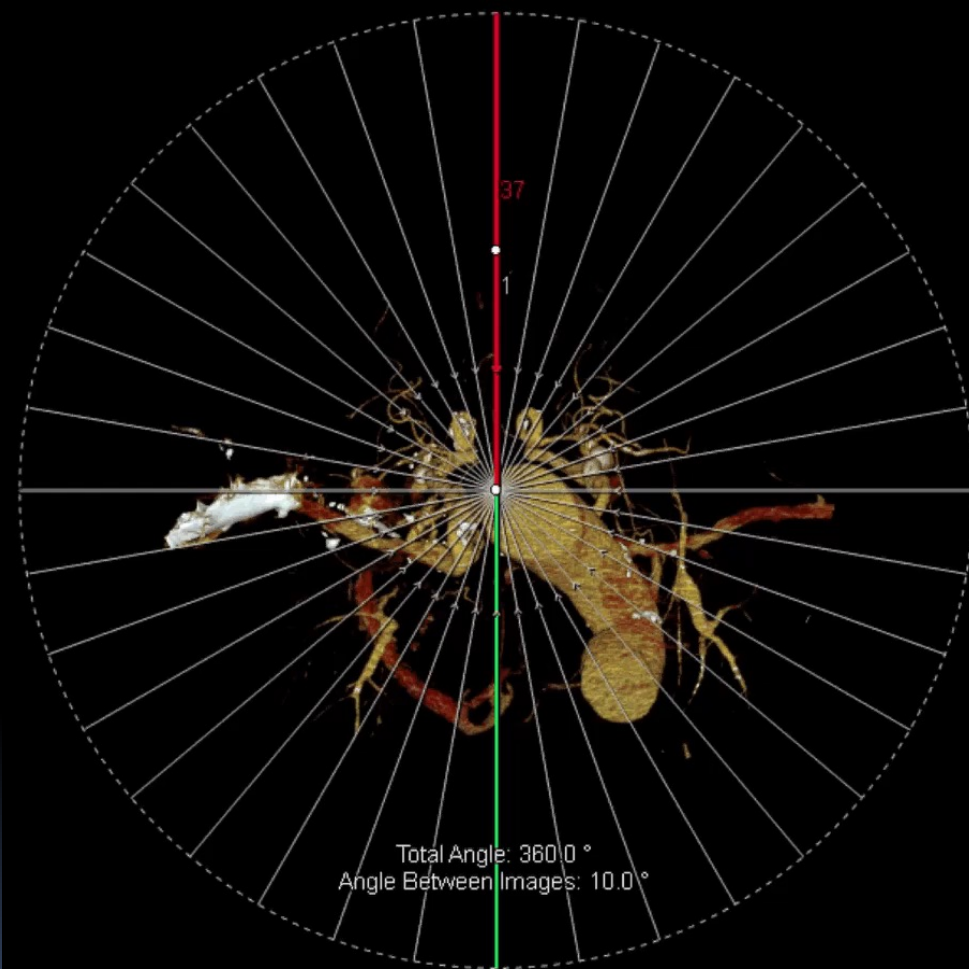
Ross Naylor ^{a,*}, Barbara Rantner ^a, Stefano Ancetti ^a, Gert J. de Borst ^a, Marco De Carlo ^a, Alison Halliday ^a, Stavros K. Kakkos ^a, Hugh S. Markus ^a, Dominick J.H. McCabe ^a, Henrik Sillesen ^a, Jos C. van den Berg ^a, Melina Vega de Ceniga ^a, Maarit A. Venermo ^a, Frank E.G. Vermassen ^a

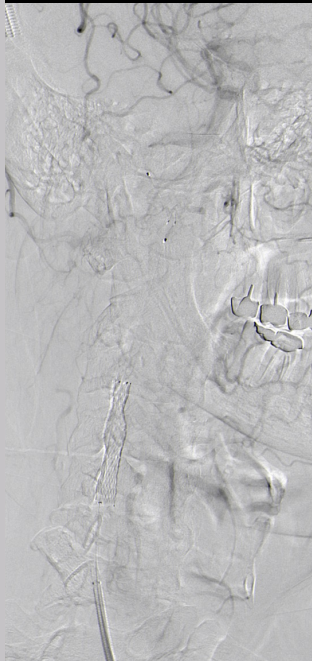
Recommendation 90

New

For patients undergoing transfemoral carotid stenting, **at least twelve carotid stent procedures per year** (per operator) may be considered an appropriate operator volume threshold in order to maintain optimal outcomes.

Class	Level	References	ToE
Ib	C	Giurgius <i>et al.</i> (2021) ¹²⁸ , Badheka <i>et al.</i> (2014) ⁴⁹² , Shishehbor <i>et al.</i> (2014) ⁴⁹⁸	

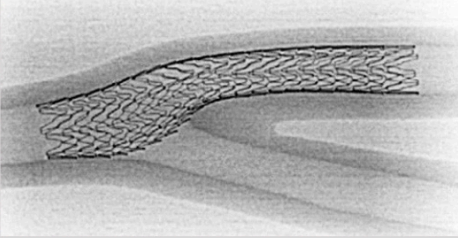
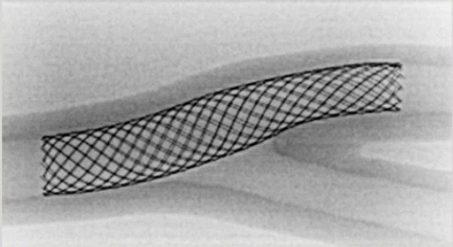






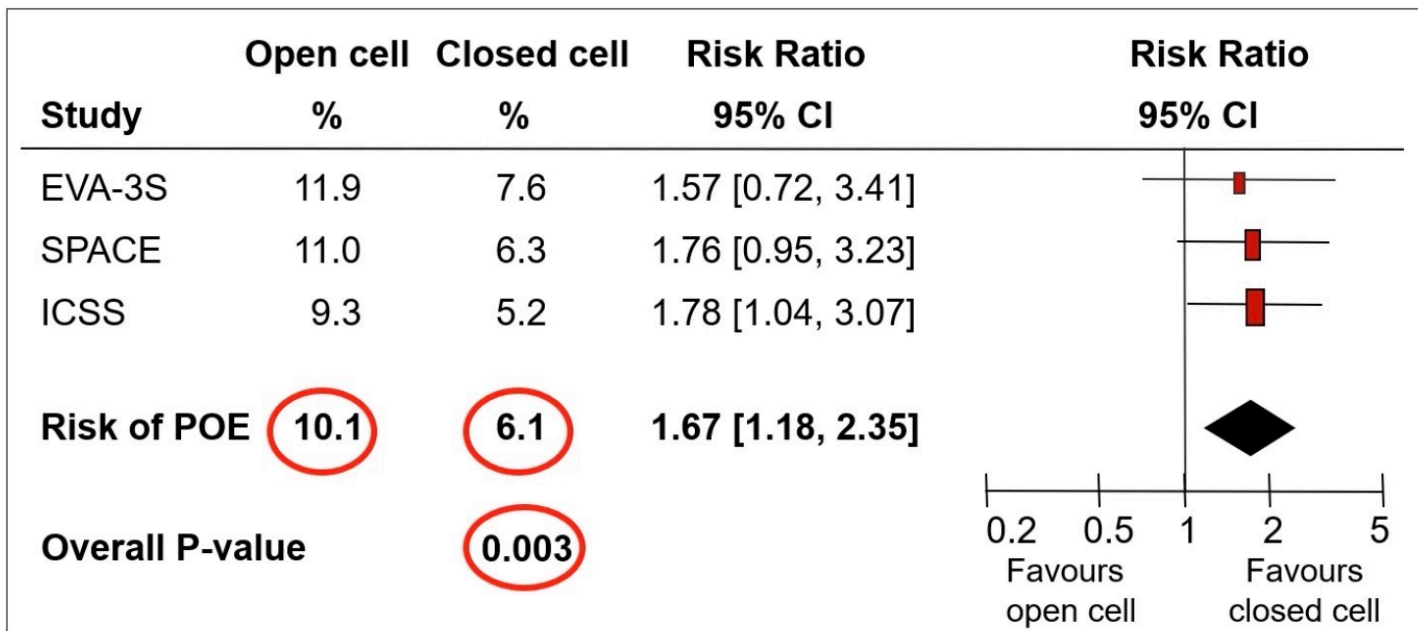
Impact of stent design?

CSTC analysis (4 trials)

Open cell design stents	Closed cell design stents
<ul style="list-style-type: none">▪ Not all struts inter-connected▪ Open area > 5 mm²  <ul style="list-style-type: none">▪ <i>Precise RX (Cordis)</i>▪ <i>Acculink (Guidant/Abbott)</i>▪ <i>Protégé (EV3)</i>▪ <i>Next Stent (Boston Scientific)</i>▪ <i>Exponent (Medtronic)</i>	<ul style="list-style-type: none">▪ All struts inter-connected▪ Open area < 5 mm²  <ul style="list-style-type: none">▪ <i>Carotid Wallstent (Boston Scientific)</i>▪ <i>Xact (Abbott)</i>▪ <i>Cristallo ideale (Invatec)</i>

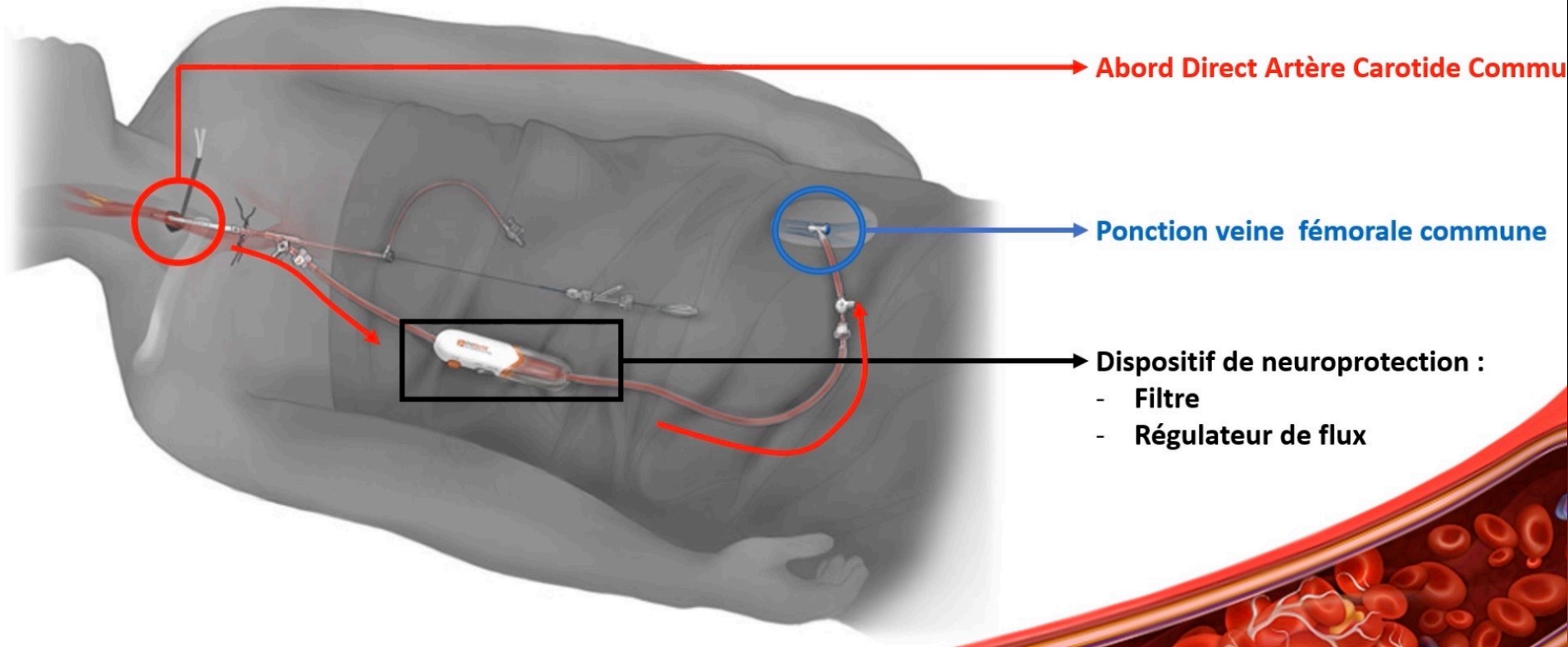
Early endarterectomy vs. Early stenting

Results from CSTC (4 trials)

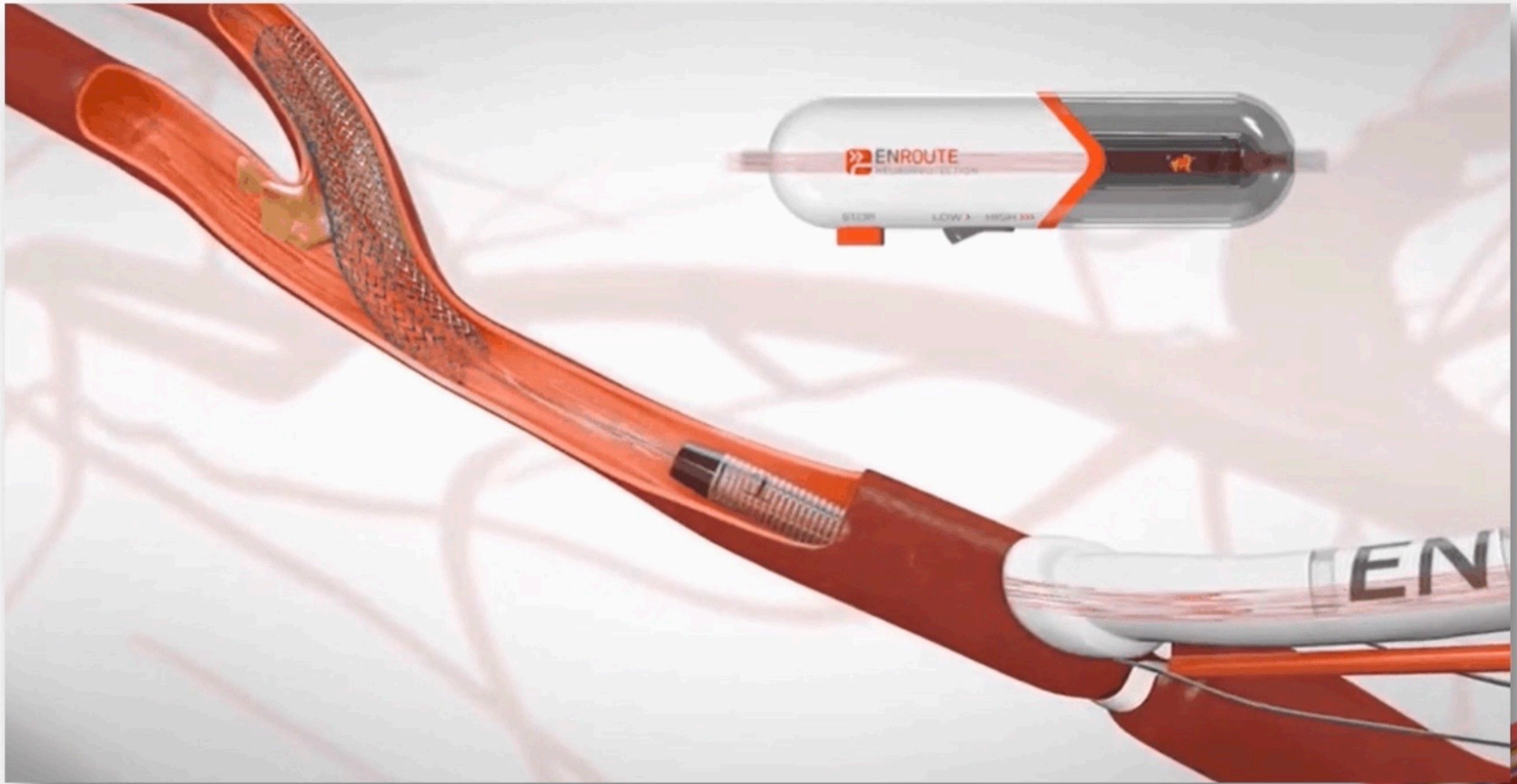


POE = primary outcome event: any stroke or death within 30 days after treatment

TCAR



Procédure



Rationnel

Multicenter Study > Ann Surg. 2007 Oct;246(4):551-6; discussion 556-8.

doi: 10.1097/SLA.0b013e3181567a39.

The CAPTURE registry: analysis of strokes resulting from carotid artery stenting in the post approval setting: timing, location, severity, and type

Ronald Fairman¹, William A Gray, Andrea P Scicli, Olivia Wilburn, Patrick Verta, Richard Atkinson, Jay S Yadav, Mark Wholey, L Nelson Hopkins, Rod Raabe, Stanley Barnwell, Richard Green, CAPTURE Trial Collaborators

Comparative Study > J Vasc Surg. 2011 Feb;53(2):316-22. doi: 10.1016/j.jvs.2010.08.063.

Epub 2010 Dec 3.

The incidence of microemboli to the brain is less with endarterectomy than with percutaneous revascularization with distal filters or flow reversal

Naren Gupta¹, Matthew A Corriere, Thomas F Dodson, Elliot L Chaikof, Robert J Beaulieu, James G Reeves, Atef A Salam, Karthikeshwar Kasirajan

Nombreux AVC controlatéraux peri opératoires après CAS



Arche aortique

Micro emboles plus fréquents pour CAS vs CEA



Protection cérébrale

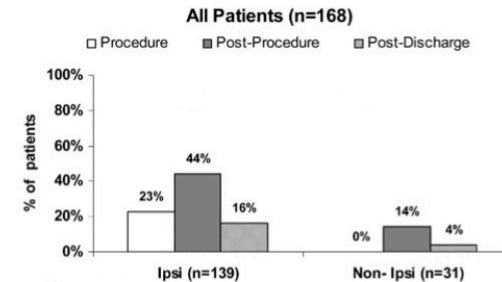
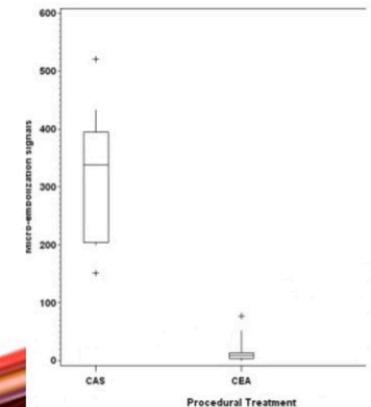


FIGURE 4. Location relative to procedure time.



Recommandations Européennes 2023

Clinical Practice Guidelines

Eur J Vasc Endovasc Surg (2023) 65, 7–111

CLINICAL PRACTICE GUIDELINE DOCUMENT

Editor's Choice – European Society for Vascular Surgery (ESVS) 2023 Clinical Practice Guidelines on the Management of Atherosclerotic Carotid and Vertebral Artery Disease

Ross Naylor ^{a,*}, Barbara Rantner ^a, Stefano Ancetti ^a, Gert J. de Borst ^a, Marco De Carlo ^a, Alison Halliday ^a, Stavros K. Kakkos ^a, Hugh S. Markus ^a, Dominick J.H. McCabe ^a, Henrik Sillesen ^a, Jos C. van den Berg ^a, Melina Vega de Ceniga ^a, Maarit A. Venermo ^a, Frank E.G. Vermassen ^a

ESVS Guidelines Committee ^b, George A. Antoniou, Frederico Bastos Goncalves, Martin Bjorck, Nabil Chakfe, Raphael Coscas, Nuno V. Dias, Florian Dick, Robert J. Hinchliffe, Philippe Kolh, Igor B. Koncar, Jes S. Lindholt, Barend M.E. Mees, Timothy A. Resch, Santi Trimarchi, Riikka Tulamo, Christopher P. Twine, Anders Wanhainen

Document Reviewers ^c, Sergi Bellmunt-Montoya, Richard Bulbulia, R Clement Darling, III, Hans-Henning Eckstein, Athanasios Giannoukas, Mark J.W. Koelemay, David Lindström, Marc Schermerhorn, David H. Stone

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Recommendation 19**Unchanged**

For average surgical risk patients with an asymptomatic 60–99% stenosis, carotid endarterectomy should be considered in the presence of one or more imaging or clinical characteristics that may be associated with an increased risk of late stroke*, provided 30 day stroke/death rates are ≤3% and patient life expectancy exceeds five years.

Class	Level	References	ToE
Ila	B	Executive Committee for the Asymptomatic Carotid Atherosclerosis Study (1995) ¹⁹⁵ , MRC Asymptomatic Carotid Surgery Trial (ACST) Collaborative Group (2004) ²⁰⁴ , Halliday <i>et al.</i> (2010) ²²⁸ , Nicolaides <i>et al.</i> (2005) ²⁶¹ , Kakkos <i>et al.</i> (2013) ²⁶⁴ , Kakkos <i>et al.</i> (2009) ²⁷⁰ , Kakkos <i>et al.</i> (2014) ²⁷¹ , Hirt <i>et al.</i> (2014) ²⁷² , Nicolaides <i>et al.</i> (2010) ²⁷³ , Gupta <i>et al.</i> (2013) ²⁷⁴ , King <i>et al.</i> (2011) ²⁷⁵ , Gupta <i>et al.</i> (2015) ²⁷⁶ , Markus <i>et al.</i> (2010) ²⁷⁷ , Topakian <i>et al.</i> (2011) ²⁷⁸	

Recommendation 20

Unchanged

For average surgical risk patients with an asymptomatic 60–99% stenosis in the presence of one or more imaging or clinical characteristics that may be associated with an increased risk of late stroke*, carotid stenting may be an alternative to carotid endarterectomy, provided 30 day stroke/death rates are $\leq 3\%$ and patient life expectancy exceeds five years.

Class	Level	References	ToE
IIb	B	Mannheim <i>et al.</i> (2017) ²²² , Rosenfield <i>et al.</i> (2016) ²²⁴ , Eckstein <i>et al.</i> (2016) ²²⁵ , Nicolaides <i>et al.</i> (2005) ²⁶¹ , Kakkos <i>et al.</i> (2013) ²⁶⁴ , Kakkos <i>et al.</i> (2009) ²⁷⁰ , Kakkos <i>et al.</i> (2014) ²⁷¹ , Hirt <i>et al.</i> (2014) ²⁷² , Nicolaides <i>et al.</i> (2010) ²⁷³ , Gupta <i>et al.</i> (2013) ²⁷⁴ , King <i>et al.</i> (2011) ²⁷⁵ , Gupta <i>et al.</i> (2015) ²⁷⁶ , Markus <i>et al.</i> (2010) ²⁷⁷ , Topakian <i>et al.</i> (2011) ²⁷⁸ , Silver <i>et al.</i> (2011) ²⁸⁰	

For asymptomatic patients deemed by the multidisciplinary team to be 'high risk for surgery' and who have an asymptomatic 60–99% stenosis in the presence of one or more imaging/clinical characteristics that may be associated with an increased risk of late stroke on best medical therapy, carotid stenting may be considered provided anatomy is favourable, 30 day death/stroke rates are $\leq 3\%$ and patient life expectancy exceeds five years*.

Class	Level	References	ToE
I b	B	Gurm <i>et al.</i> (2008) ²²³ , Nicolaidis <i>et al.</i> (2005) ²⁶¹ , Kakkos <i>et al.</i> (2013) ²⁶⁴ , Kakkos <i>et al.</i> (2009) ²⁷⁰ , Kakkos <i>et al.</i> (2014) ²⁷¹ , Hirt <i>et al.</i> (2014) ²⁷² , Nicolaidis <i>et al.</i> (2010) ²⁷³ , Gupta <i>et al.</i> (2013) ²⁷⁴ , King <i>et al.</i> (2011) ²⁷⁵ , Gupta <i>et al.</i> (2015) ²⁷⁶ , Markus <i>et al.</i> (2010) ²⁷⁷ , Topakian <i>et al.</i> (2011) ²⁷⁸ , Yadav <i>et al.</i> (2004) ²⁸²	

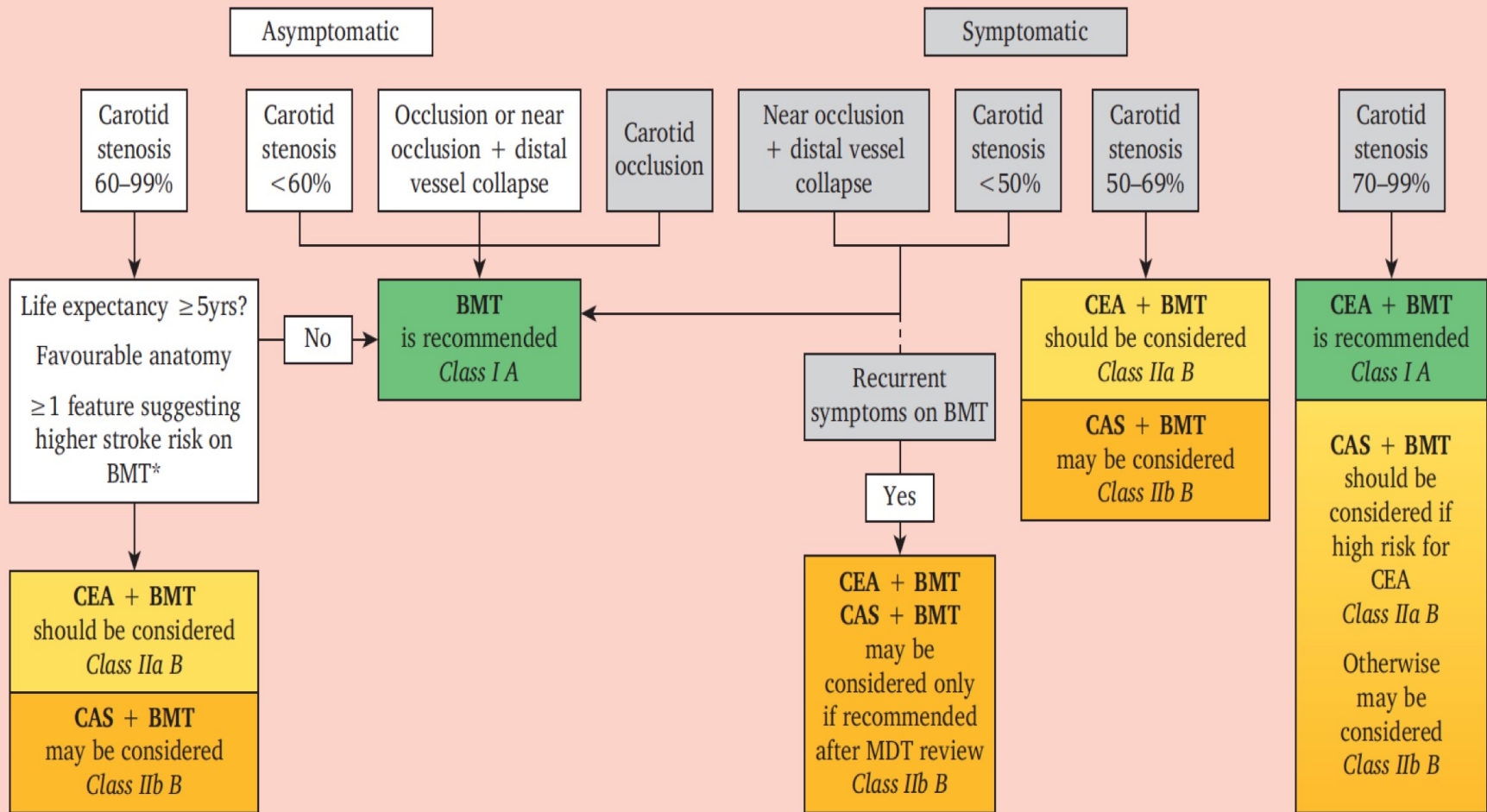


Figure 2. Management of “average risk” patients with asymptomatic and symptomatic carotid stenoses with best medical therapy (BMT), carotid endarterectomy (CEA), and/or carotid artery stenting (CAS). * See Table 8 for imaging/clinical criteria that confer an increased risk of stroke on BMT.

Points de réflexion

- Chirurgie Carotidienne recommandée en première intention
- Chirurgie vasculaire : patients âgés aux atteintes multiples et poly-pathologiques
- Risque admis équipes entraînées +/-1%
- Maîtrise des deux techniques indispensable
- Evolution du matériel endovasculaire : stents double couche?
- Evaluation de la méthode TCAR (USA)

Merci pour votre attention

