

MEET 2008 – Carotid Course

Technical Aspects

Why I prefer
closed cells
stents

M. Bosiers

K. Deloose

P. Peeters

Procedural phase



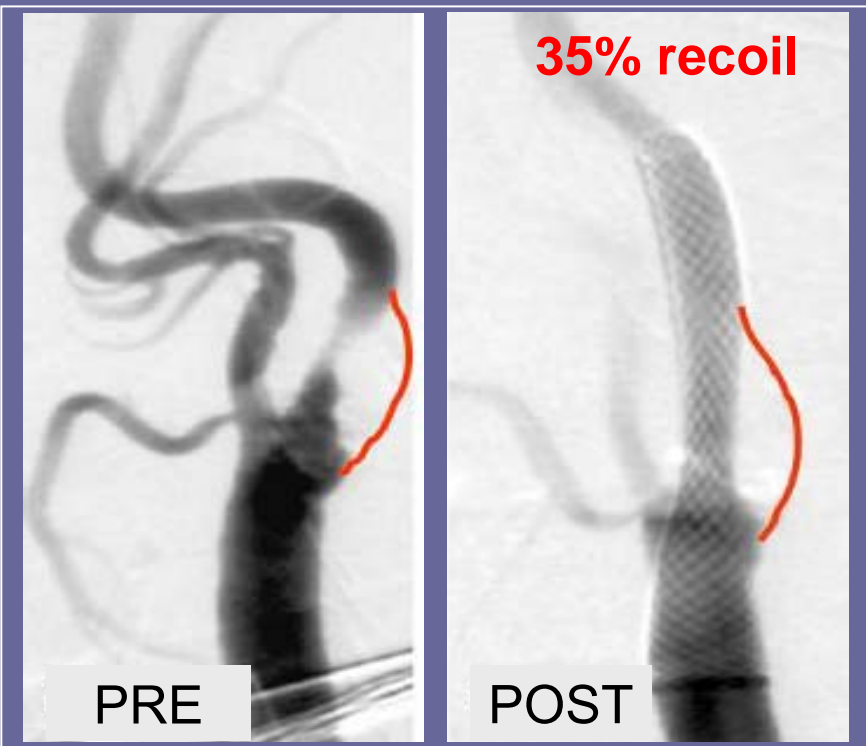
- Safe stent delivery
 - High flexibility



- Excellent trackability
- Minimal device profile

Procedural phase

- Optimal stent outcome
 - Scaffolding
 - Side branch preservation
 - Visibility
 - Recoil prevention

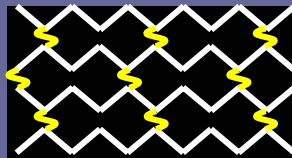


Procedural phase

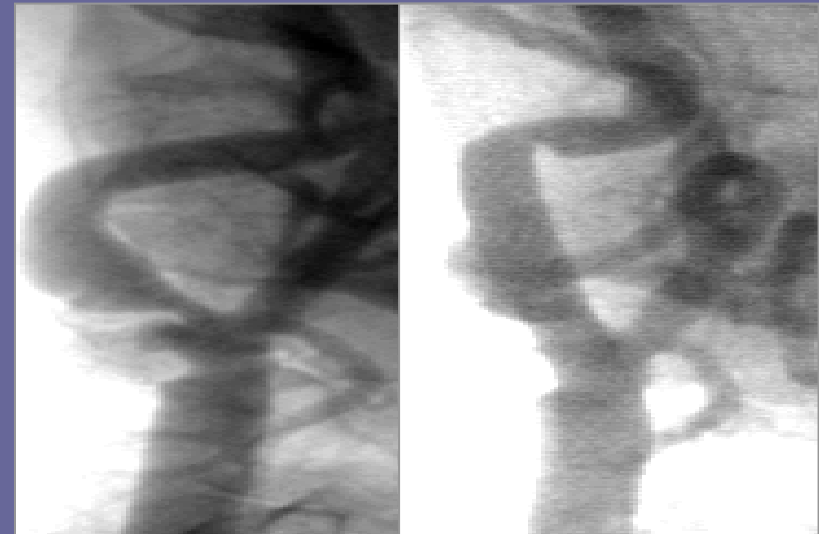
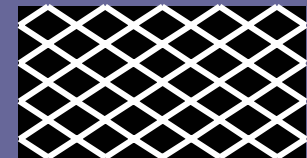


- Optimal stent outcome
 - Vessel conformability

Open cell design
with **few** bridges



Braided stent
closed cell design

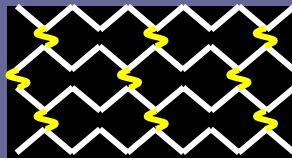


Procedural phase

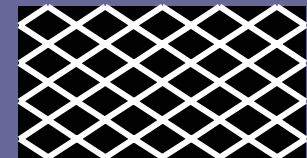


- Optimal stent outcome
 - Vessel conformability

Open cell design with few bridges



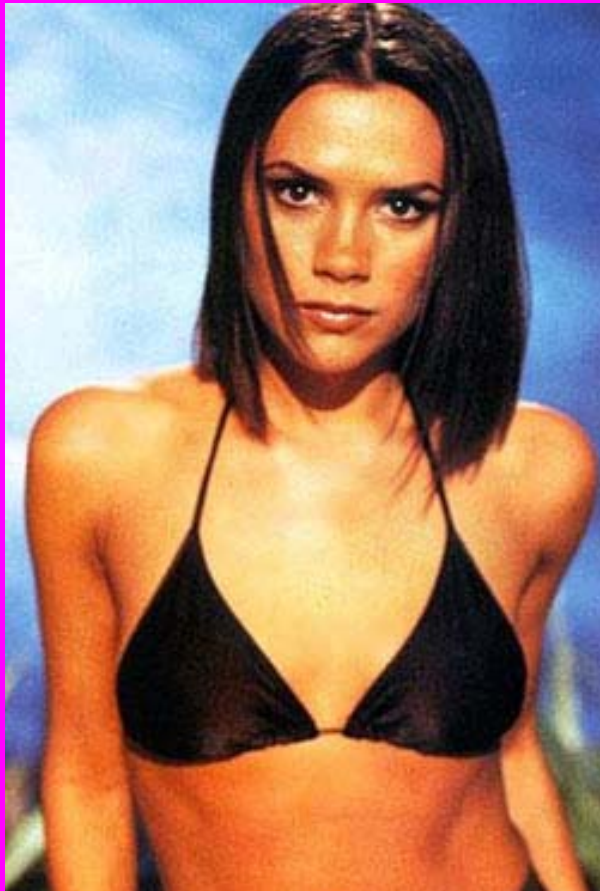
Braided stent closed cell design



**HERE WE MIGHT HAVE
A CASE FOR USING
OPEN CELL STENTS,
BUT...**

CAS

is no cosmetic surgery



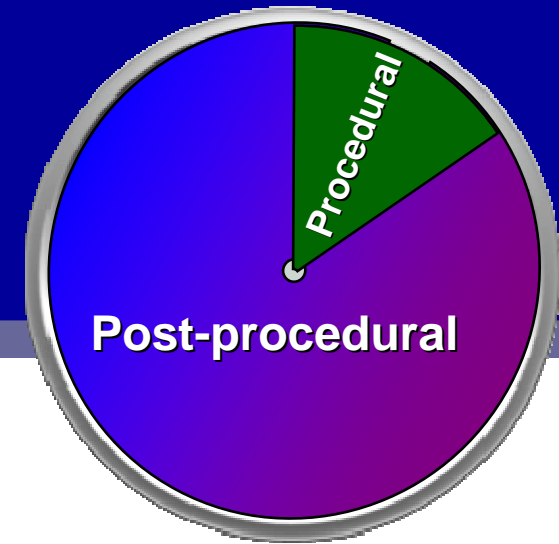
CAS

*is all about
preventing
that one hit*

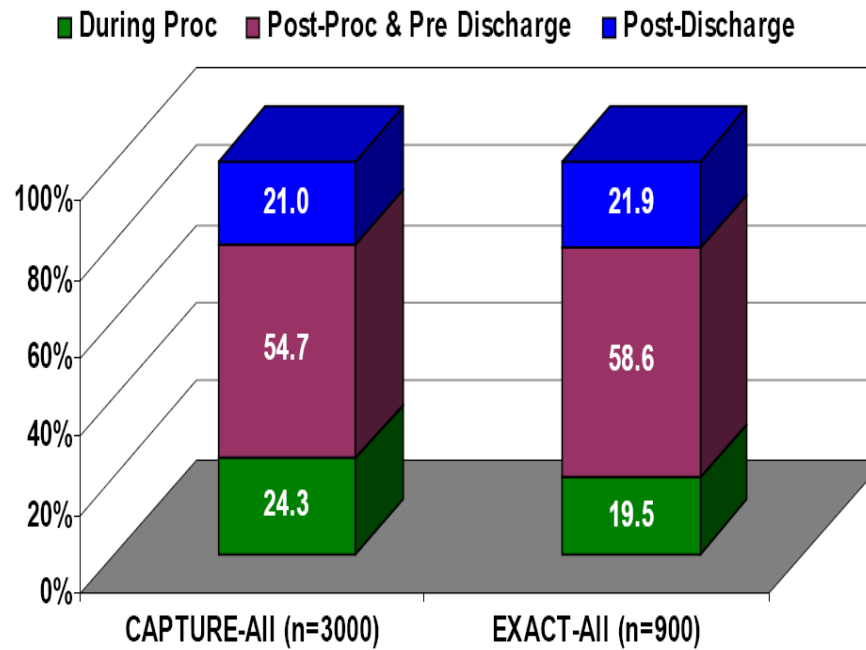


Amy K. Halachka - 2005

Post-procedural phase



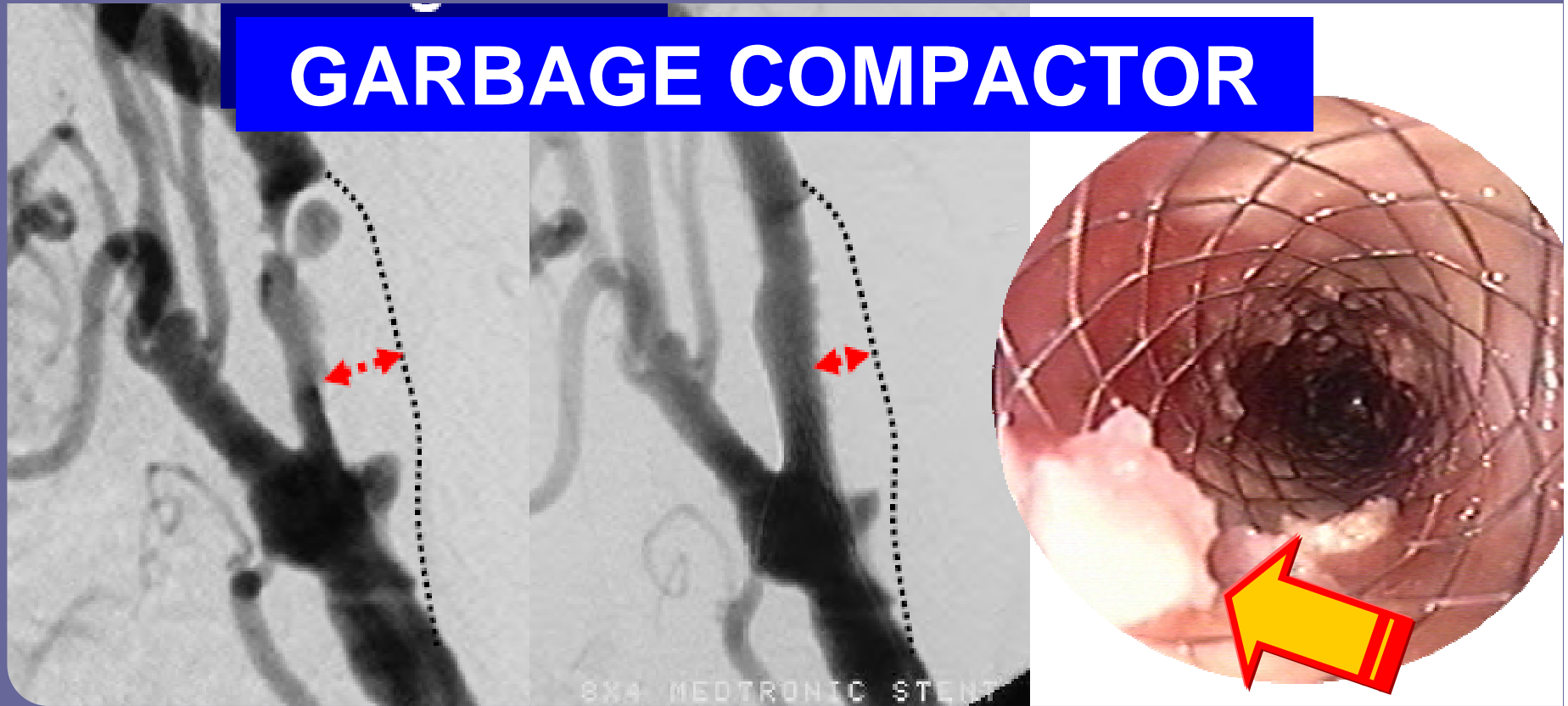
- The majority of strokes occur post-procedure (+/- 70%)



Post-procedural phase

ENDOVASCULAR → Plaque containment!

GARBAGE COMPACTOR

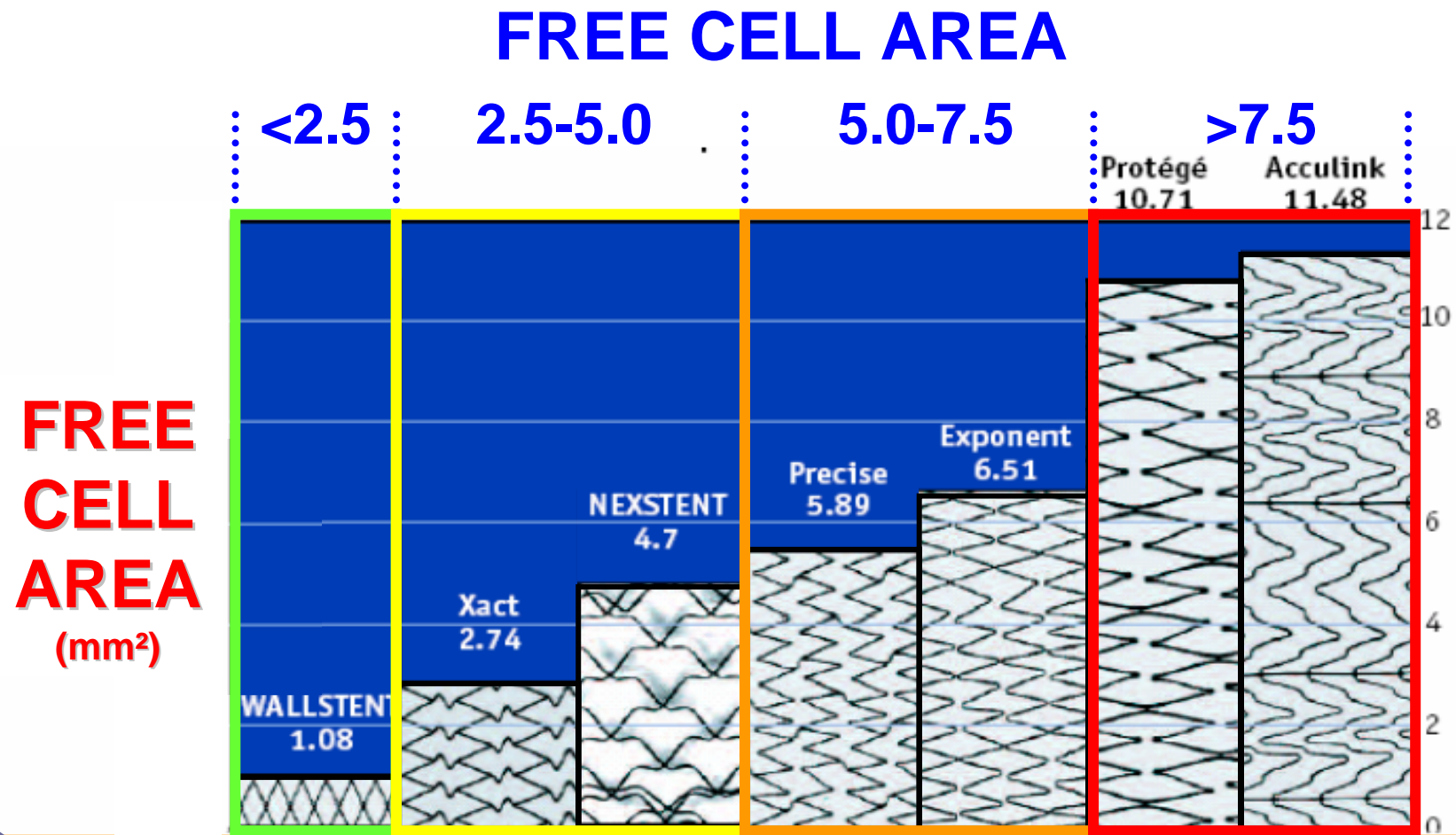


Belgian Italian Carotid (BIC) dataset

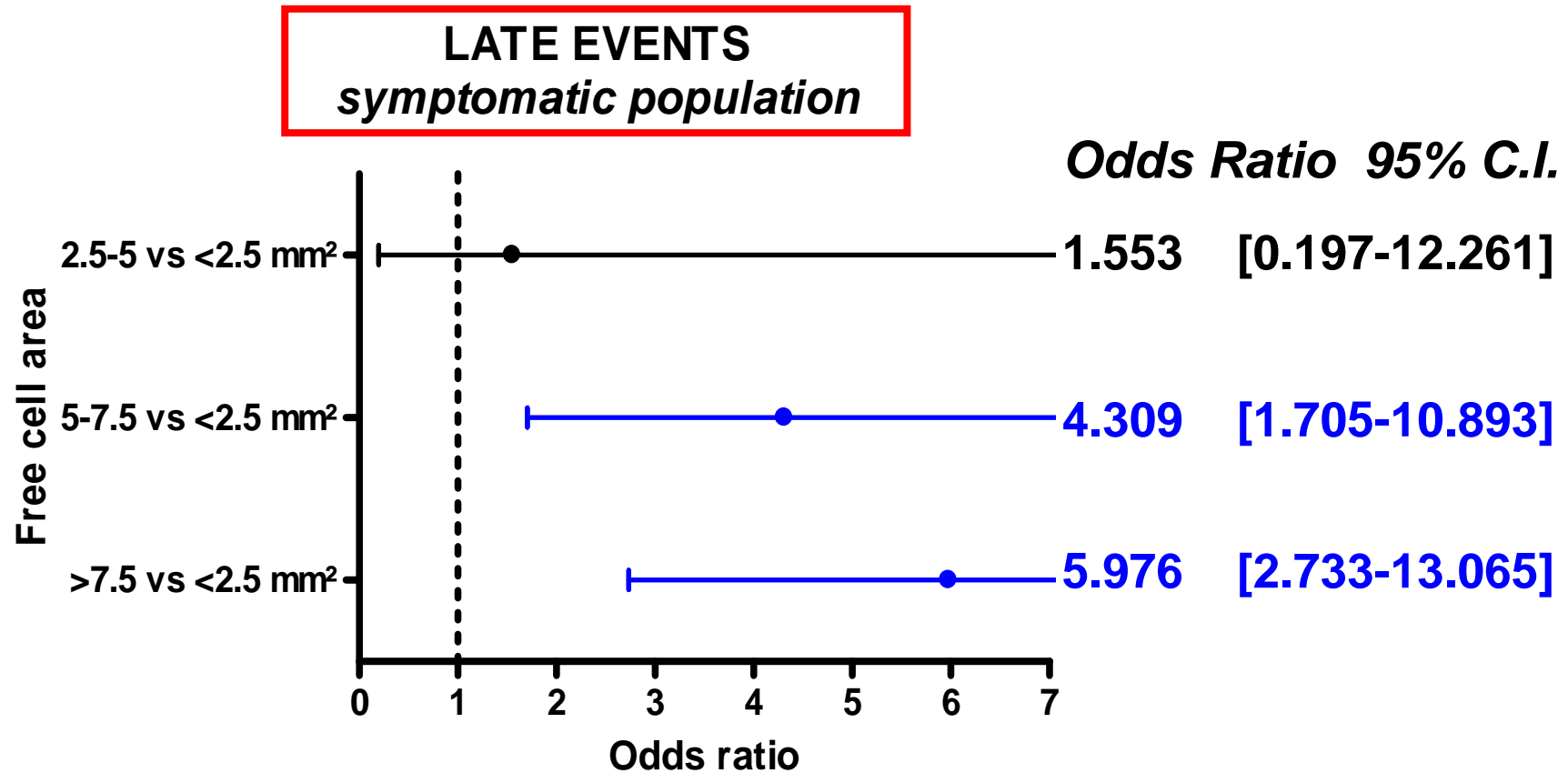
- Review 30 day CAS outcome
 - TIA + minor stroke + major stroke + death

	ALL EVENTS		LATE EVENTS	
	n/N	%	n/N	%
Total population	90/3179	2.8%	61/3179	1.9%
Symptomatic population	48/1317	3.6%	36/1317	2.7%
Asymptomatic population	42/1862	2.6%	25/1862	1.3%

“Free cell area” based analysis



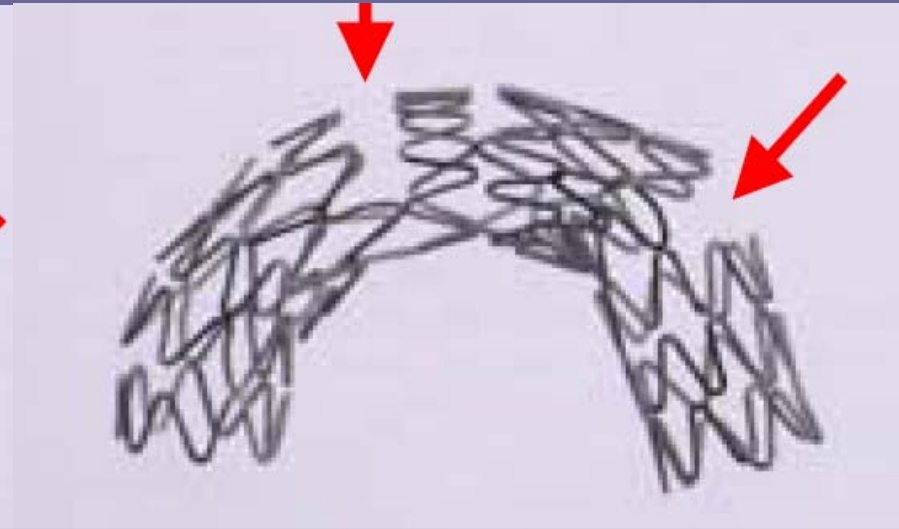
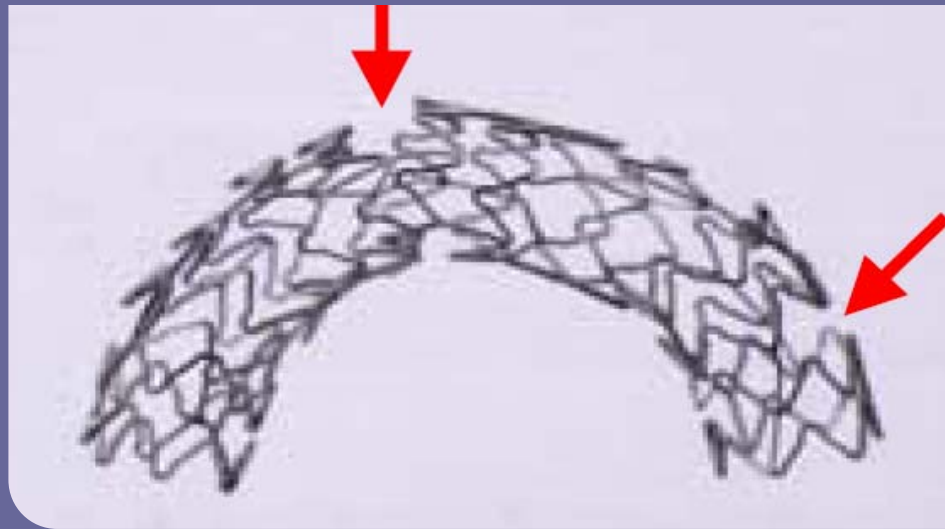
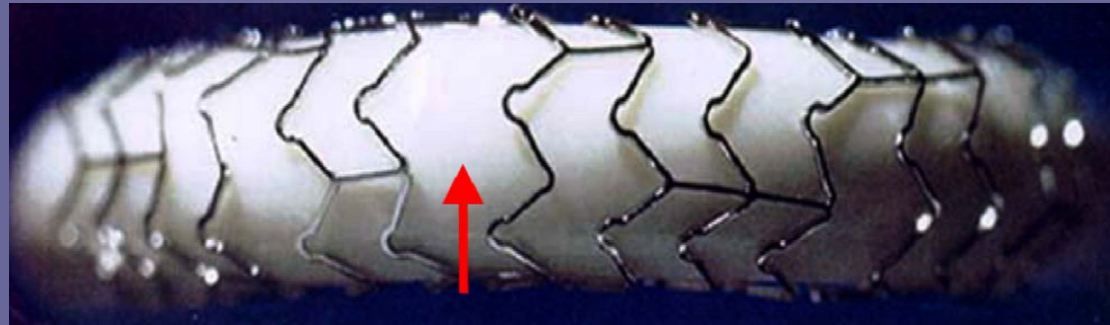
“Free cell area” based analysis



“Stent design”: why closed cell?

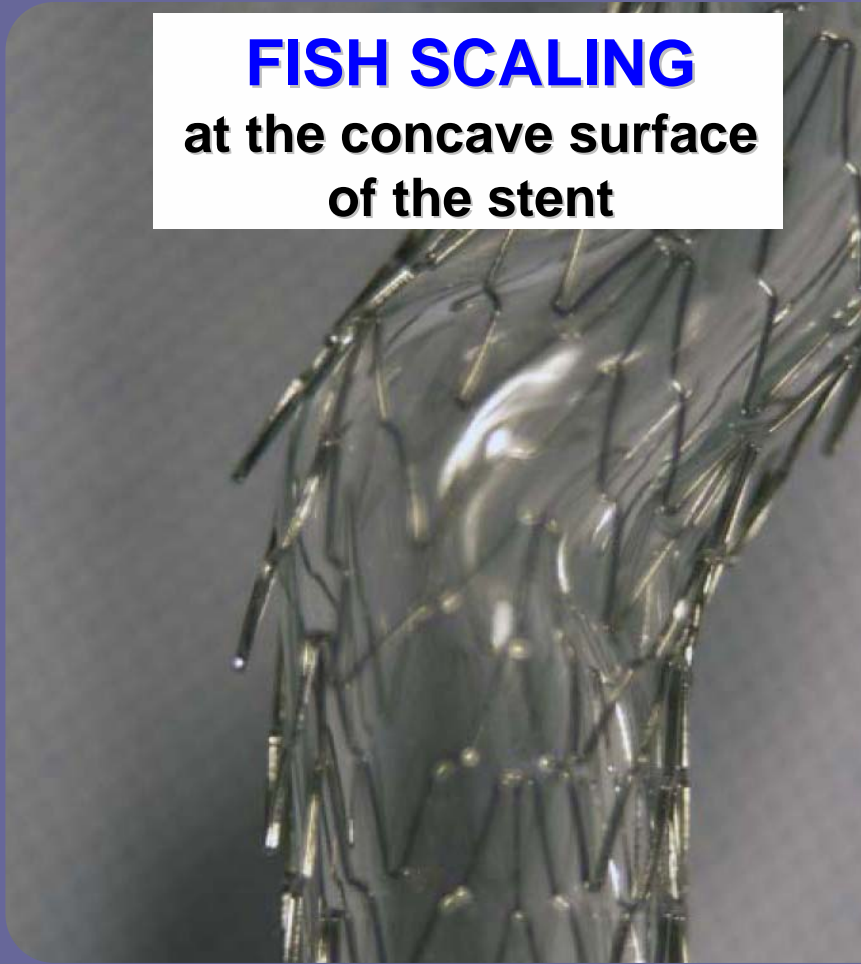
- Open cell designs in tortuous curvature

PROLAPSE

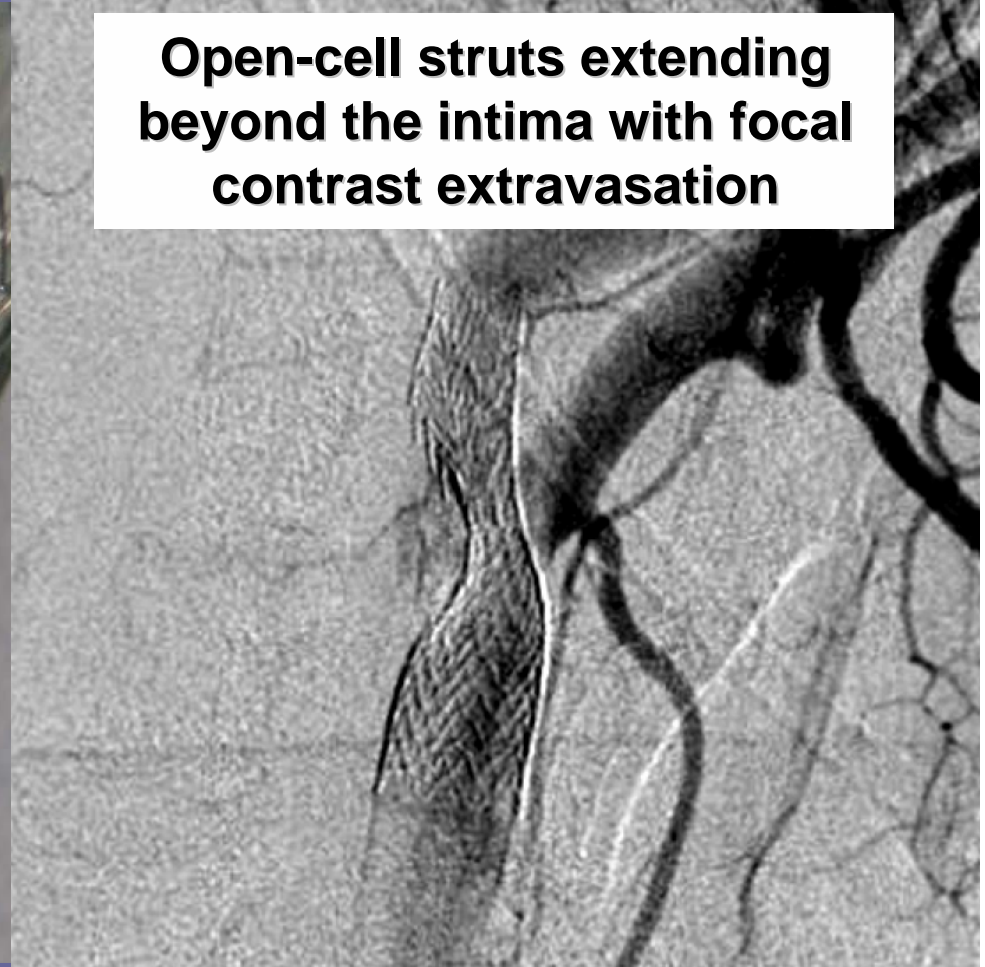


“Stent design”: why closed cell?

FISH SCALING
at the concave surface
of the stent



Open-cell struts extending
beyond the intima with focal
contrast extravasation



“Stent design” based analysis

30-day MAE	Symptomatic	
	n/N	%
<u>BIC</u>		
Closed	21/934	2.2%
Open	27/383	7.0%
<u>SPACE</u>		
Closed	26/434	6.0%
Open	13/118	11.0%
CEA	37/584	6.3%

30 day results from the SPACE trial of stent-protected angioplasty versus carotid endarterectomy in symptomatic patients: a randomised non-inferiority trial

The SPACE Collaborative Group*

Summary
Background Carotid endarterectomy is effective in stroke prevention for patients with severe symptomatic carotid-artery stenosis, and carotid-artery stenting has been widely used as alternative treatment. Since equivalence or superiority has

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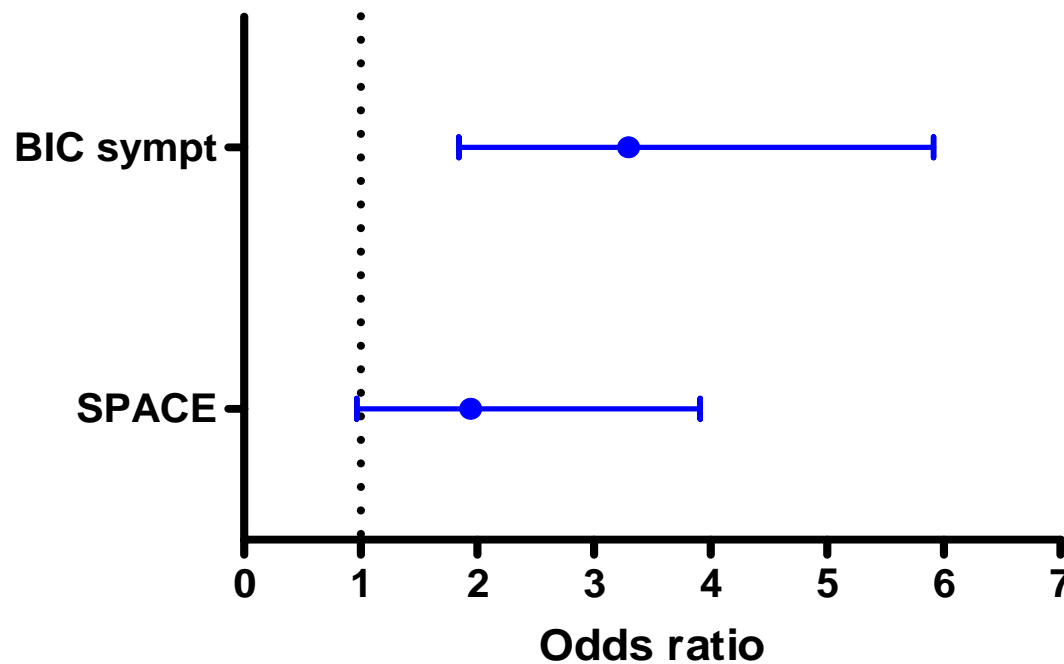
Inte
for the periprocedural complication rate. The results of this trial do not justify the widespread use in the short-term of carotid-artery stenting for treatment of carotid-artery stenoses. Results at 6–24 months are awaited.

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Results confirmed by
subanalysis SPACE-trial
(Prof. Jansen)

“Stent design” based analysis

ALL EVENTS
stent design: open vs. closed



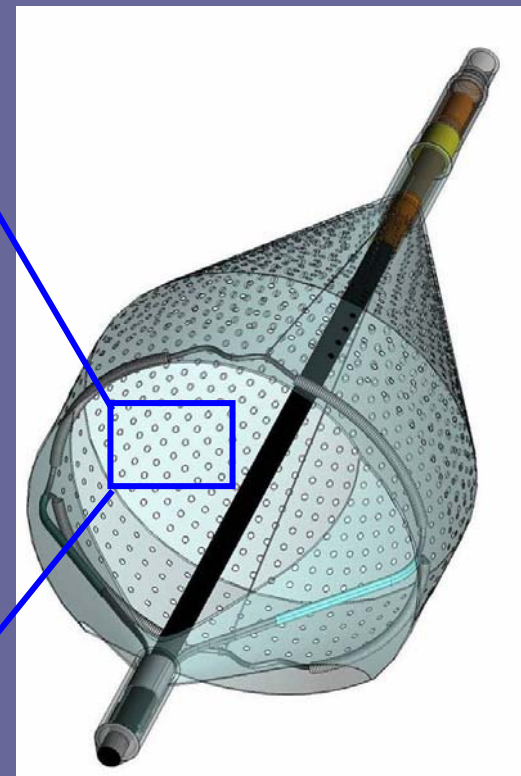
Odds Ratio 95% C.I.

3.297 [1.840-5.908]

1.943 [0.965-3.910]

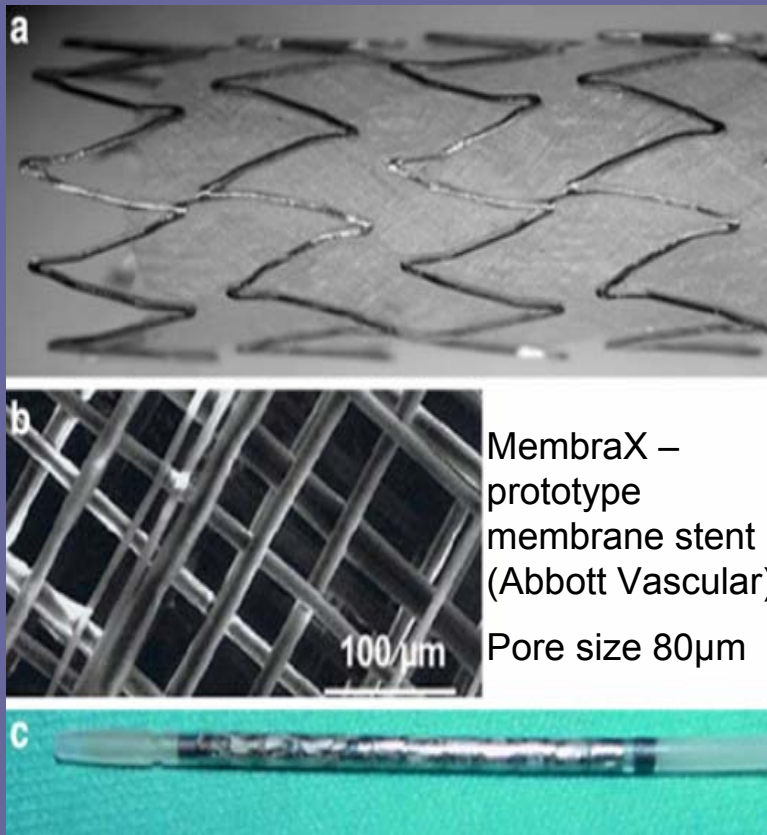
Future scaffolding solutions???

- Flexible **porous membrane** stent (+/- 100 μm ~ EPD)



Future scaffolding solutions???

- Flexible **porous membrane** stent

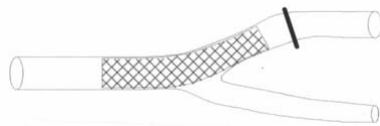


- Membrane stent has **potential for reducing the late emboli**

Future scaffolding solutions???

- Flexible **porous membrane** stent
 - Membrane has **minimal effect on carotid flow!**

In-vitro CAS

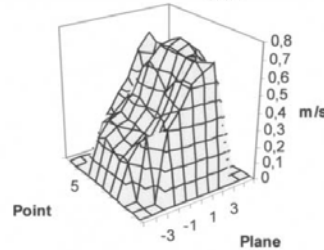
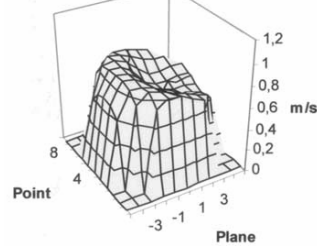
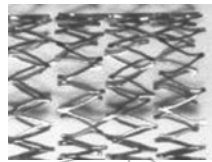


ICA distal of stent
No flow separation by membrane

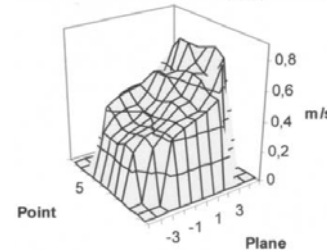
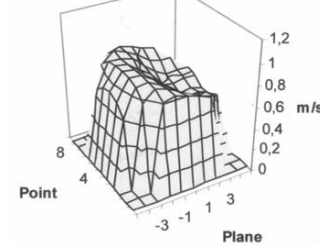
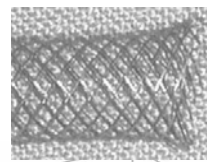


ECA
calming of flow with slight flow volume loss

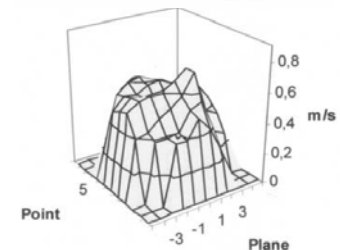
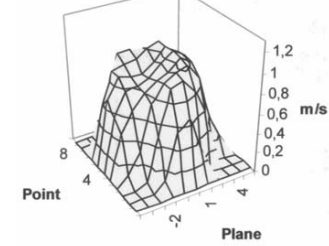
SelfX



Wallstent



MembraX



Conclusion

CAROTID ARTERY STENTING

≠ cosmetic intervention

= brain preservation

→ Post-operative
scaffolding is
most important issue

