Stent properties and vessel adaptability: Could these factors influence procedural outcomes?

Dr. Matteo Stefanini,
Interventional Radiologist Department,
Policlinico Casilino Hospital, Rome, Italy

Disclosure

Speaker name:

Dr. Matteo Stefanini

I have the following potential conflicts of interest to report:

☐ Consulting

☐ Employment in industry

☐ Stockholder of a healthcare company

☐ Owner of a healthcare company

☐ Other(s)

☒ I do not have any potential conflict of interest

Our Observations: vessel anatomy changes induced by the stent

Carotid Wallstent™

Pre Post

Roadsaver™/Casper™

Pre Post

CGuard™

Pre Post

Our study [JET 22]

Background

- Carotid revascularization may produce modifications on native vascular geometry.

Aim

- To evaluate the changes on the vessel angulation after carotid stent implantation

Material

- Three types of carotid stents were available at the hospital by tender, according the operator preferences: one physician threated patients with WallStent or RoadSaver, while the other one selected CGuard for all his cases.

[JET 22] Ginanni Corradini, L., Balocco, S., Maresca, L., Vitale, S., & Stefanini, M. (2022). Anatomical Modifications After Stent Implantation: A Comparative Analysis Between CGuard, Wallstent, and Roadsaver Carotid Stents. *Journal of Endovascular Therapy*, 15266028221075559.

Measurements

1. Selection of the optimal angiography projection with the maximal vessel angulation.

2. Measure the native angle between the CCA and the proximal segment of the ICA in the predefined projection.

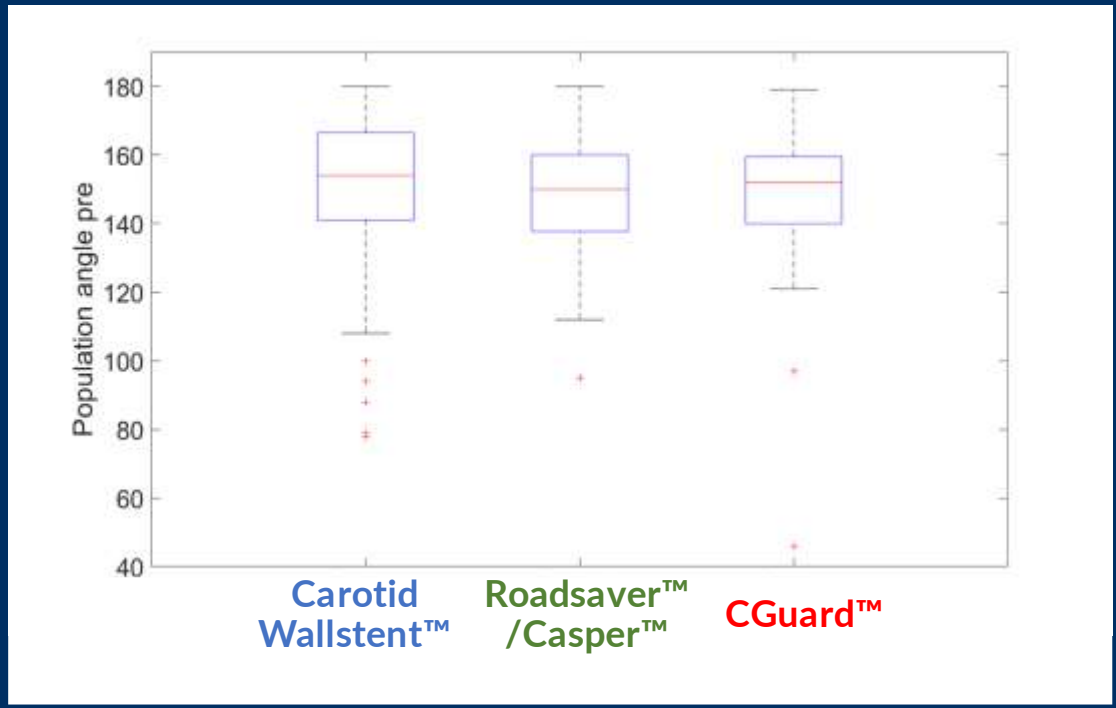
3. After stent final result, the angle between CCA and the proximal segment of the ICA in the predefined projection is again measured.

Results: Basal analysis

Population cohorts

- We prospectively recruited 217 consecutive patients (112 GC, 73 WS, and 32 RS).

- No statistical difference in the basal vessel geometry was found between the stent populations.



RESULTS: Comparison between pre-post stent angle

- **No significant difference** was found for **CGuard™**
- **Significant differences** were found for the other stents

Statistical analysis

LABEL	N	PRE- ANGLE [°]		POST- ANGLE [°]		DIFF [°]		P-VALUE	SIGNIFICANCE
		Mean	STD	Mean	STD	Mean	STD		
CGUARD	112	151	21.3	157	17.9	6.0	5.8	0.0739	N.S.
WALLSTENT	73	149	18.2	169	9.7	19.9	12.2	1.023E-13	<0.05
ROADSAVER	32	147	26.4	165	13.4	18.2	16.5	0.000905	<0.05

RESULTS: Differences between pre-post stent angle (Boxplot)

boxplot

CGuard™ Wallstent™ Roadsaver™

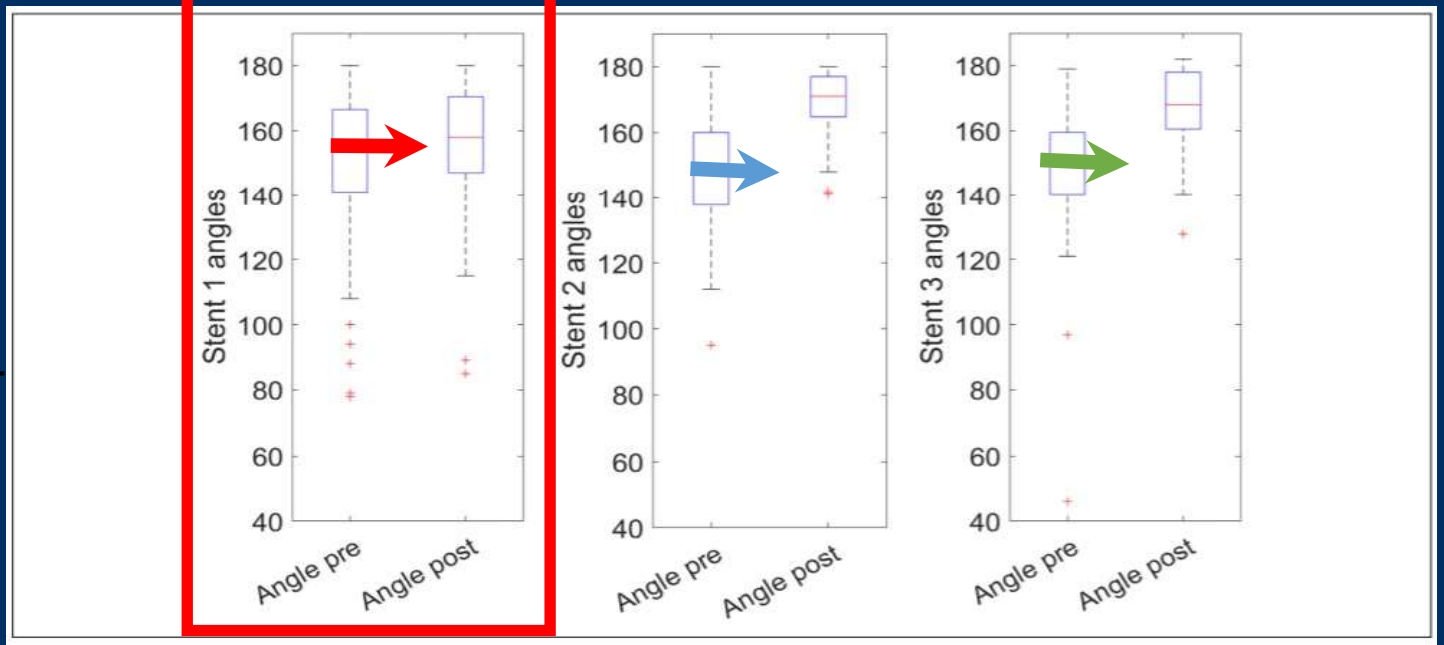


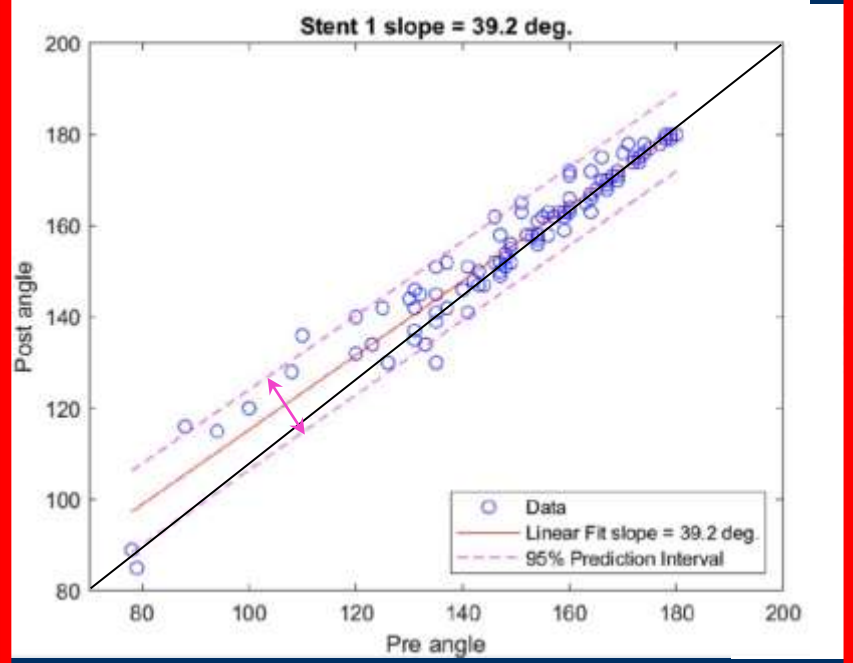
Figure 4. Angle of the stent before and after intervention, for stent types 1, 2, and 3, respectively.

- For CGuard™, the pre and post boxplots **are overlapped.**

- For Wallstent™ and Roadsaver™, the boxes **are not overlapped**, in amplitude, representing significant differences.

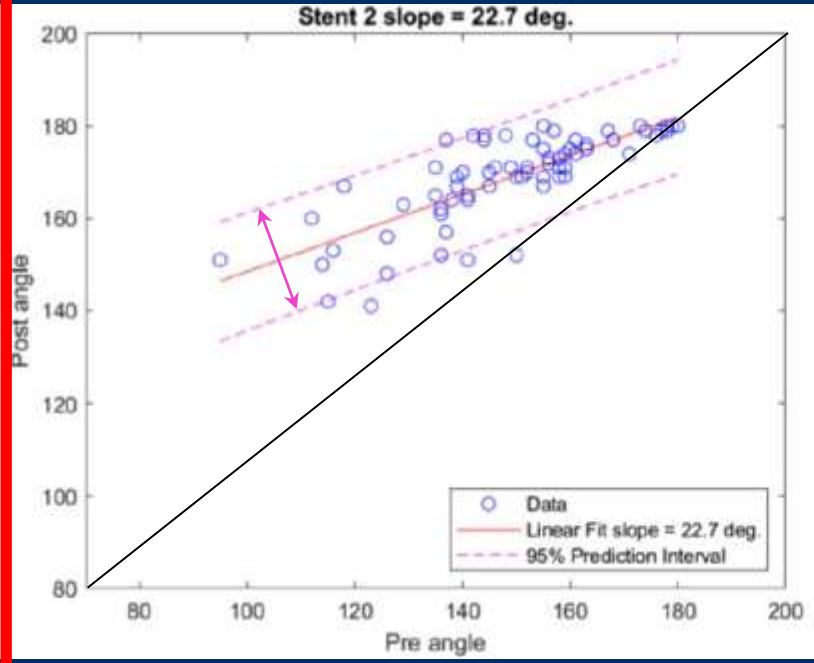
RESULTS: Differences between pre-post stent angle (Linear regression analysis)

CGuard™



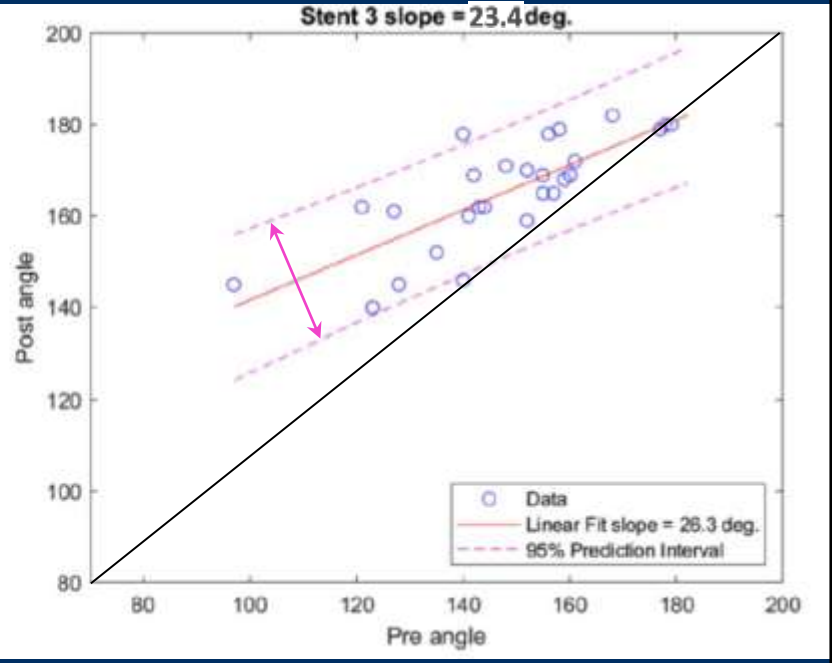
Low stent effect in angle change

Wallstent™



Highest stent effect in angle change

Roadsaver™



High stent effect in angle change

Conclusions

- CGuard demonstrates NO significant alteration with respect to the physiological vessel morphology

- We conclude that CGuard has a better conformability compared to Wallstent and RoadSaver stents.

- With noted limitation of angle estimation being obtained from two-dimensional angiographic projections. 3D assessment might provide additional insights.

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