

Comparative conformability of two cobalt-chromium stents with different stents design and strut thickness

Dr. Atul D Abhyankar (MD, DM, FSCAI, FISE, FACC)
Clinical Director – Interventional Cardiology,
Shri B.D.M. Mahavir Heart Institute,
Surat, Gujarat, India



Objective

- We sought to compare the conformability of two different stents (Supraflex and Xience Prime) made up of similar metal platforms but having different design and strut thickness.

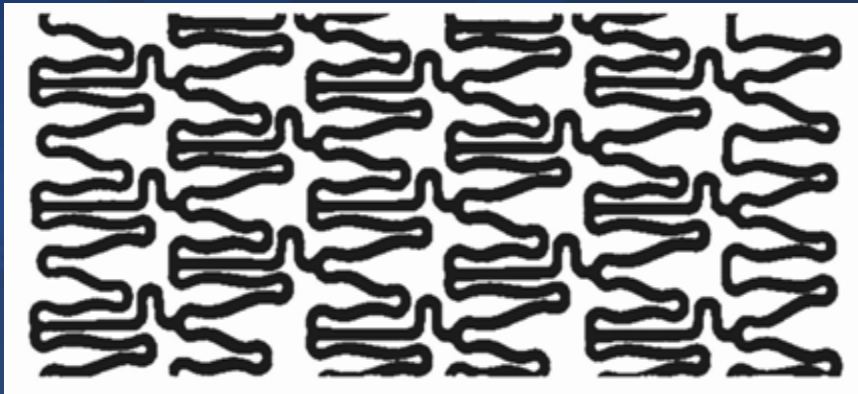
Methods

- A total of 59 consecutive, contemporaneous patients were analyzed for conformability of which 30 patients were treated with the Supraflex stent and 29 patients with the Xience Prime stent.
- Patients with totally occluded arteries or excessive proximal tortuosity were excluded.
- Stents were assessed using a validated software analysis of arterial curvature and angulations at pre- and post-implantation.
- The absolute difference between post implantation and pre implantation was used as a surrogate of stent conformability.

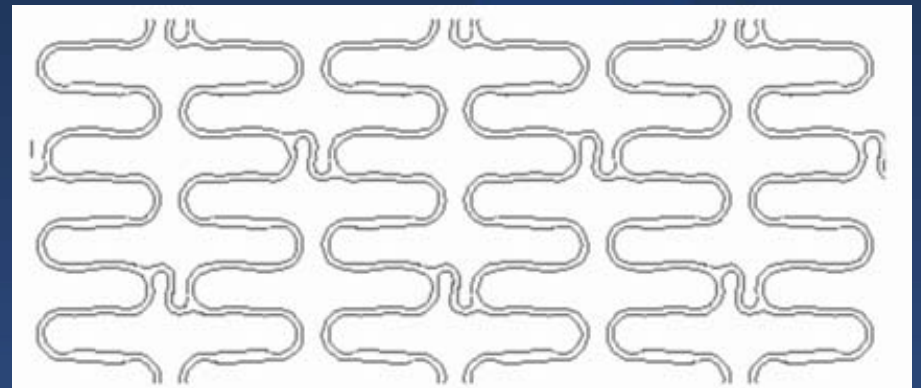
Methods (cont.)

- Conformability was assessed by curvature and angulations of arterial curvature.
- Curvature is defined as the infinitesimal rate of change in the tangent vector at each point of the centerline.

Structure and Design of Studied Intracoronary Devices



Xience Prime



Supraflex

Results

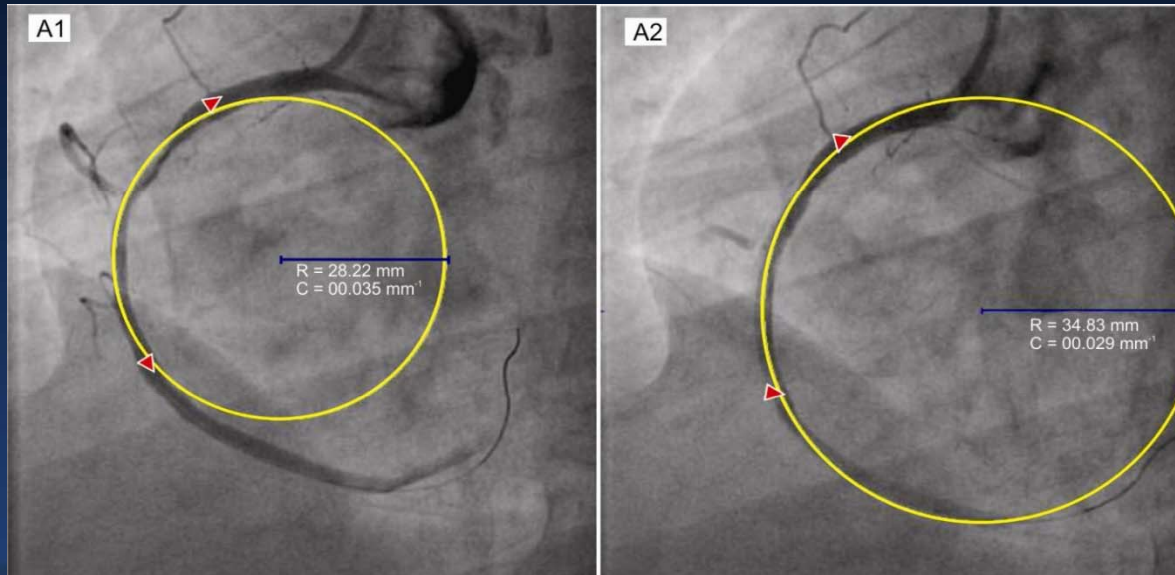
Variable	Device	Pre-Treatment	Post-Treatment	Relative Change in Pre vs. Post (%)	<i>P</i> Value*	<i>p</i> Value#
Curvature (cm ⁻¹)	Supraflex	0.502 (0.404 - 0.609)	0.390 (0.329 - 0.556)	22.31 %	<0.001	0.016
	Xience Prime	0.557 (0.447 - 0.705)	0.419 (0.323 - 0.564)	24.78 %	<0.001	
Angulation (°)	Supraflex	42.97 (33.04 - 60.27)	38.33 (26.55–50.02)	10.80 %	<0.001	0.84
	Xience Prime	36.61 (24.15 - 57.56)	26.71 (19.34–43.68)	27.04 %	<0.001	

Results (cont.)

- In both the Supraflex and Xience Prime groups, there was a significantly lower curvature after treatment than before treatment.
- The comparison between the two devices in terms of change in curvature showed a significant change ($p=0.016$).
- The relative changes in percentage of angulation within pre- and post-treatment measures resulted in less modification with the Supraflex, 10.80% (from 42.97° to 38.33° , $p<0.001$), versus 27.04% with the Xience Prime (from 36.61° to 26.71° , $p<0.001$).

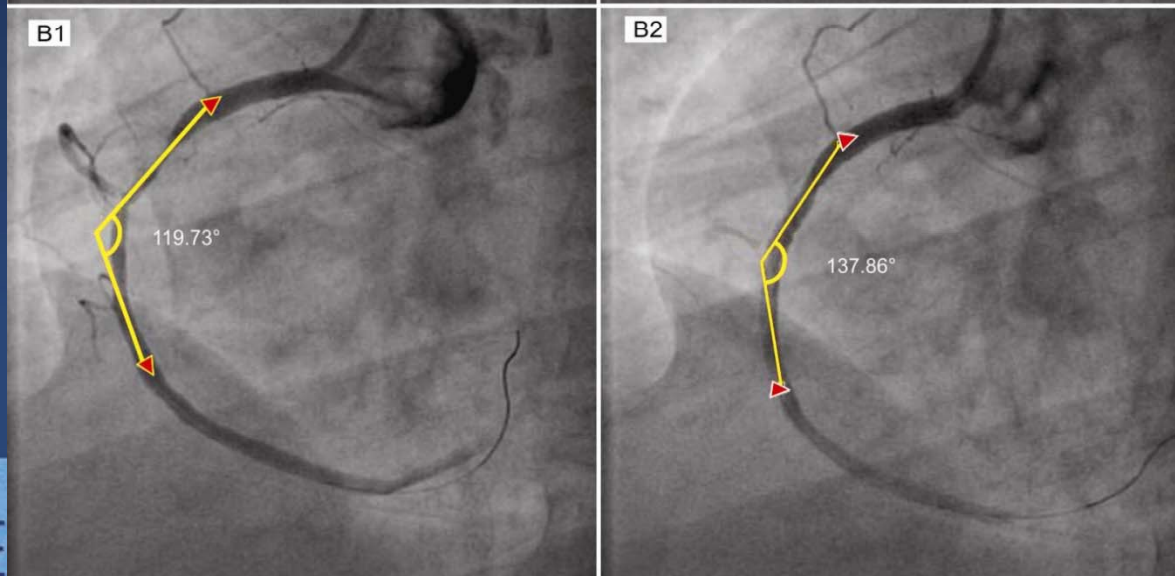
Curvature and angulation analysis

Curvature



Before deployment
(A1 and A2)

Angulation



After deployment
(B1 and B2)

Conclusions

- Both the stents cause alteration in vessel geometry measured in terms of curvature and angulation in coronary artery post-deployment.
- The conformability of Supraflex was better as compared to Xience Prime using curvature index but was marginally better using angulation index.

Thank YOU