

Initial deployment orientation of ACURATE neo THV and final commissural alignment: a pilot study on optimizing post-procedural coronary access

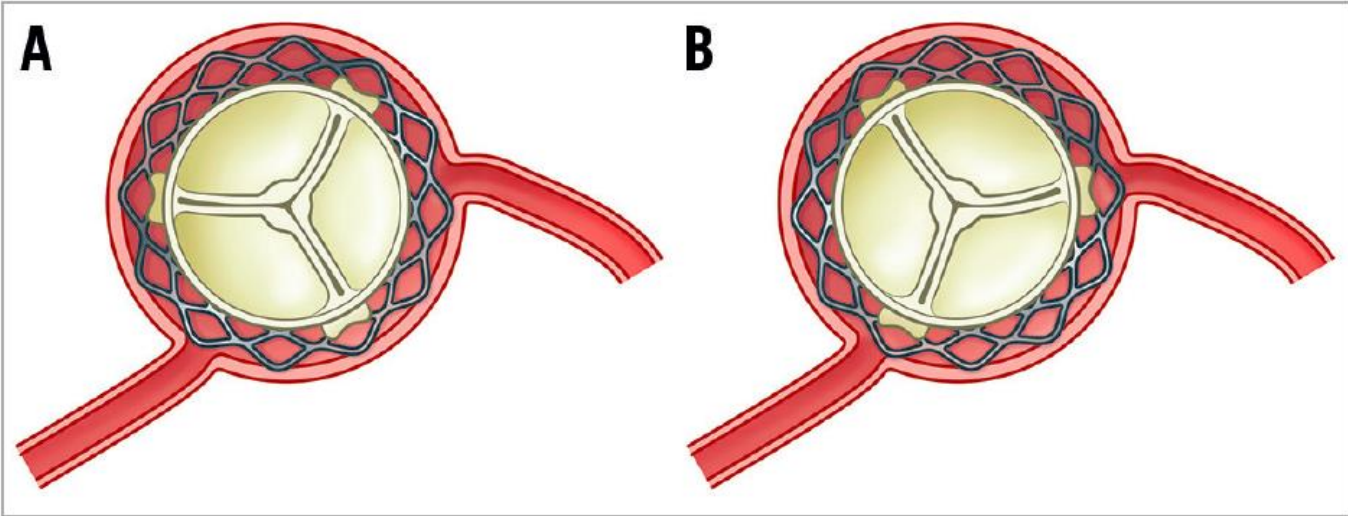
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I have the following potential conflicts of interest to declare:

Receipt of honoraria or consultation fees: Abbott, Boston Scientific

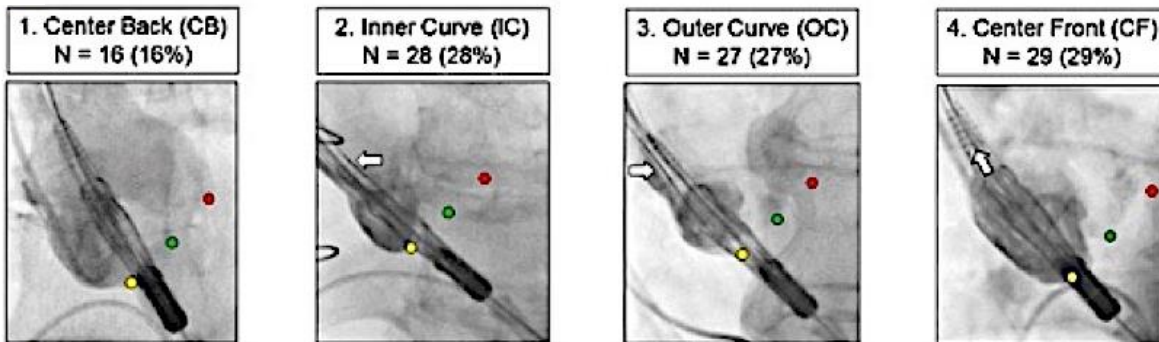
- In TAVR, transcatheter heart valve (THV) commissural alignment with native commissures appears random and may compromise coronary re-access.
- We evaluated whether the orientation of ACURATE-neo THV at the initial deployment can predict its final commissural alignment & interference with coronary re-access.



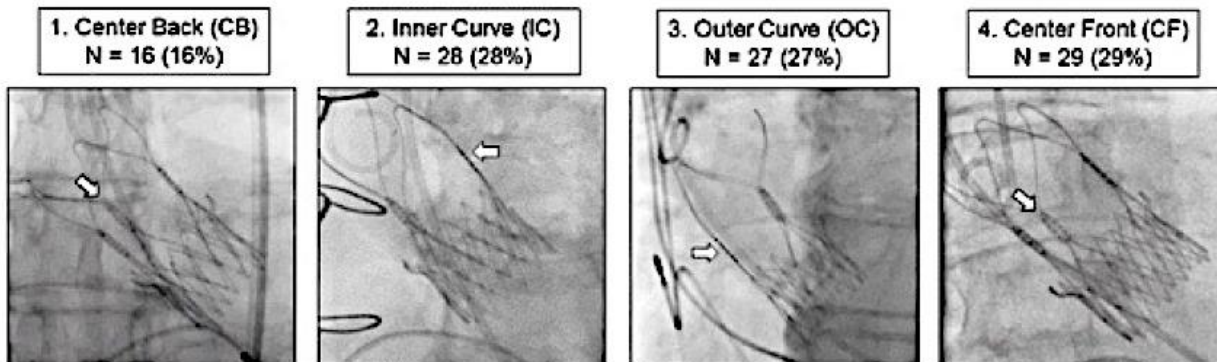
- Pre-TAVR CT and procedural fluoroscopy were retrospectively analyzed on 100 patients, who had TAVR with the ACURATE-neo for aortic valve stenosis from March 2016 to September 2018.

- The commissural tab during initial deployment was categorized as center back (CB), inner curve (IC), outer curve (OC) or center front (CF), and matched with the final valve orientation.

Commissural Tab Orientation at Initial Deployment



Final Commissural Tab Orientation at Co-planar View



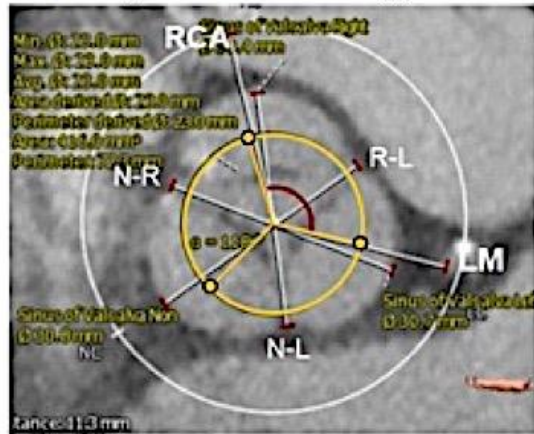
- THV orientation based on the 3-cusp coplanar fluoroscopic view was co-registered to pre-TAVR CT to predict the final **commissural alignment**.

➔ **Overlap** between coronary ostia and neo-commissures were categorized as:

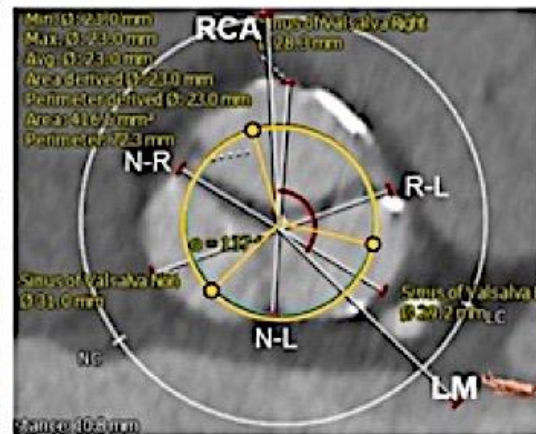
- mild ($>40-60^\circ$).
- moderate ($>20-40^\circ$)
- severe ($0-20^\circ$)

Overlap between Coronary Orifices and Neo-Commissures

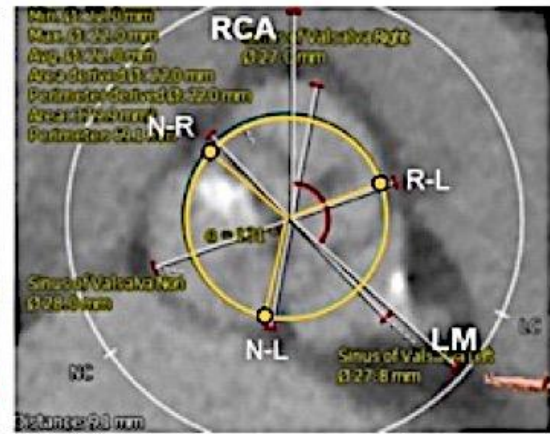
Severe (0.0-20.0°)
(Closest Proximity)



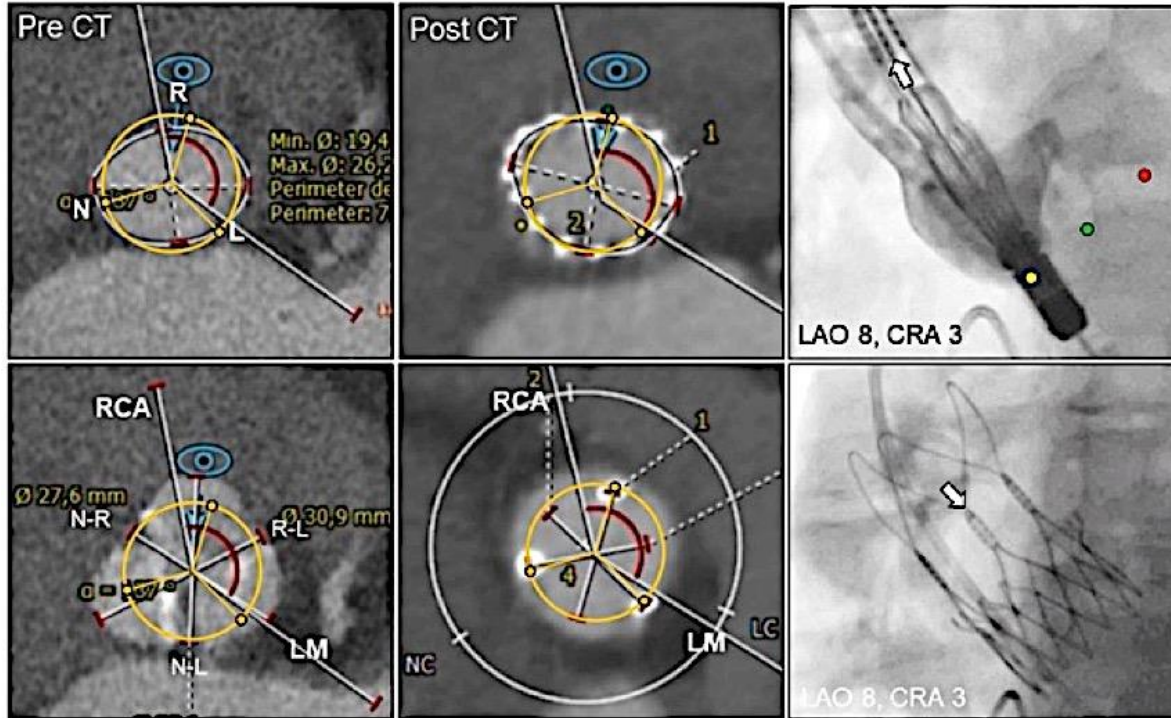
Moderate (20.1-40.0°)



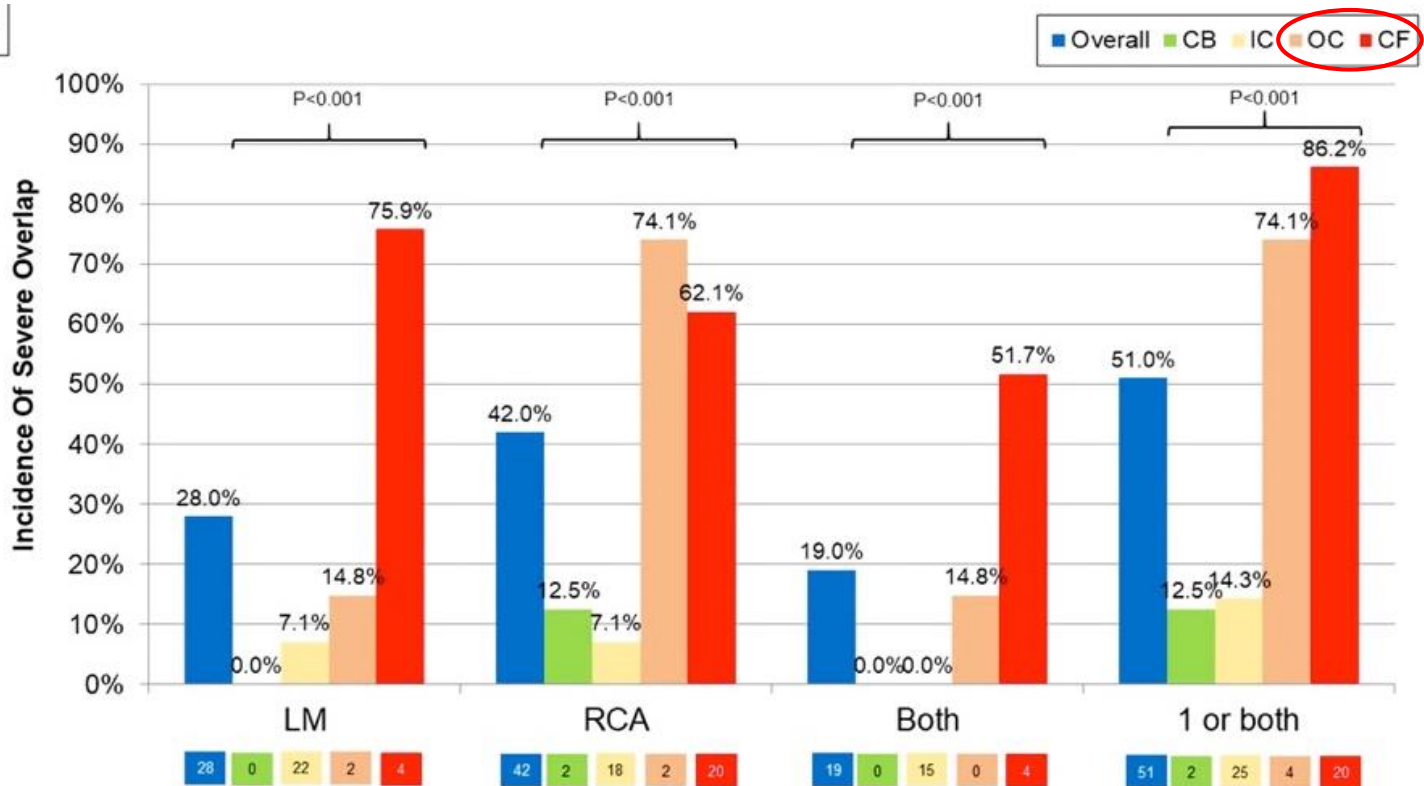
Mild (40.1-60.0°)



Case Example

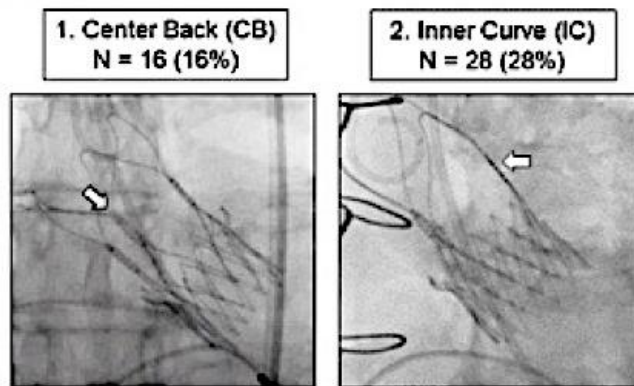


Post-TAVR CT was performed in 33 patients to validate the methodology.



- Initial THV orientations were evenly distributed (with 16% of one commissure at CB, 28% IC, 27% OC and 29% CF).
- **With commissural post at IC/CB** – severe overlap with left main (LM) was low at 0%/7.1%, with RCA 12.5%/7.1%, and with both coronary arteries 0%, respectively.
- **With commissural post at OC/CF** – increased severe overlap with LM to 75.9%/14.8%, with RCA 62.1%/74.1%, and with both coronary arteries 51.7%/14.8%, respectively ($p < 0.001$).

Having an ACURATE-neo THV commissural tab at IC/CB during initial deployment reduced severe neo-commissural overlap to <15%. These findings may be applied to optimize the possibility for post-TAVR coronary re-access.



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