Proximal Optimizing Technique (POT) in coronary bifurcation stenting

What is its precise place in the different technical sequences?

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Questions?

1. Is final POT sufficient to correct the detrimental effects of KB?

2. Is the minimal balloon juxtaposition strategy the best compromise between the risk of carina shifting and the proximal arterial elliptical deformation?

1. Are the beneficial mechanical effects of POT influenced by the balloon compliance?
Criteria of OCT analysis

- Ellipticity Ratio ($D_{\text{max}}/D_{\text{min}}$):

- Percentage global strut malapposition
- Percentage side branch obstruction (SBO)
Q1: Is final POT sufficient to correct the detrimental effects of KB?

* p<0.05 vs rePOT
‡ p<0.05 vs FKB
Detrimental effect after KBI

1) Bottle neck effect

Reference $D_{MoV} = 4.16$ mm


Detrimental effect after KBI

Theoretical balloon juxtaposition in KBI
Detrimental effect after KBI

2) Proximal elliptic deformation (arterial + plaque overstretch)
Detrimental effect after KBI

True balloon juxtaposition in KBI

Mortier P et al. JACC CI 2014
Detrimental effect after KBI

POT inflation with balloon at $D_{\text{ref}} = D_{\text{min}}$
Detrimental effect after KBI

3) Opposite strut malapposition in the proximal segment
Q2: Is the minimal balloon juxtaposition strategy the best compromise between the risk of carina shifting and the proximal arterial elliptical deformation?

* p<0.05 vs rePOT
‡ p<0.05 vs FKB
Simultaneous minimal juxtaposition kissing balloon slipping effect
Q3: Are the beneficial mechanical effects of POT influenced by the balloon compliance?

\[ D_{ref} = 4.16 \text{mm} \]

-Inflation of a 4.0 mm balloon for POT

Reference \( D_{M0V} = 4.16 \text{ mm} \)

- Before POT
- After POT with non-compliant balloon 4.0 mm @ 20 atm
- After POT with compliant balloon 4.0 mm @ 16 atm
Conclusions

**Question 1:** Is final POT sufficient to correct the detrimental effects of FKB?

**NO**

A final POT performed after KBI does not appear sufficient to correct the detrimental effects of KB. RePOT seems to be experimentally better than all strategies with FKB.
Question 2: Is the minimal balloon juxtaposition strategy the best compromise between the risk of carina shifting and the proximal arterial elliptical deformation?

NO

Minimal juxtaposition balloon strategy presents the same complication that FKB with an elliptical deformation however less extensive. The minimum juxtaposition of two balloons exposes to the risk of slipping and dissection.
Conclusions

**Question 3:** Are the beneficial mechanical effects of POT influenced by the balloon compliance?

**YES**

The use of a non-compliant balloon can expose to a under expansion after POT and increases proximal malapposition.

So a compliant balloon must be mandatory to the POT