UNPREDICTABLE STENT EXPANSION AFTER FINAL KISSING BALLOON INFLATION FOR BIFURCATION LESIONS: AN INTRAVASCULAR ULTRASOUND ANALYSIS

i2 Poster Contributions
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Background: Recent studies demonstrated that single stent strategy for bifurcation lesions was superior to complex 2 stent. However, efficacy of final kissing balloon technique (KBT) remains subject of debate.

Methods: We investigated 67 bifurcation lesions treated by single crossover sirolimus-eluting stent (SES) and additional KBT. After final KBT, stent cross sectional area (S-CSA) were measured in every 1 mm slice from distal end of proximal main vessel by intravascular ultrasound (IVUS). We also estimated S-CSA post KBT using Mitsudo's formula (R2=MBB2 (Main branch balloon)+SBB2 (Side branch balloon)). Ratio of minimal/estimated S-CSA (Min/E ratio) was calculated, and Min/E ratio< 0.7 was defined as 'suboptimal' expansion after KBT.

Results: Suboptimal expansion of minimal S-CSA sites was observed in 41 cases (59.7%). Minimal S-CSA sites were located within 1mm from distal end of proximal main vessel in 40 cases (59.7%). Predictors of suboptimal CSA were larger balloon size of both main branch (MV) (3.33 in suboptimal vs. 3.13mm in optimal, p<0.05) and side branch (SB) (2.74 vs. 2.52mm, p<0.05). If size of KBT balloons and then estimated S-CSA were large, measured S-CSA is frequently suboptimal. Furthermore, correlation coefficient is small (R^2 = 0.194), indicating that it is hard to expect stent expansion after KBT from balloon size.

Conclusions: Stent expansion after KBT is unpredictable. Evaluation of stent area by IVUS after KBT is recommended especially when large stent area is required.

**Correlation between Minimal S-CSA and Estimated S-CSA**

![Graph showing correlation between Minimal S-CSA and Estimated S-CSA](image)

Minimal S-CSA = 4.523+ 0.362 * Estimated S-CSA; R^2 = 0.194