



 TCT@ACC-i2: Interventional Cardiology

## THE EFFECTS OF PREDILATION WITH SCORING BALLOON COMPARED TO CONVENTIONAL BALLOON ON COBALT-CHROMIUM STENT EXPANSION ANALYZED WITH OPTICAL COHERENT TOMOGRAPHY

Poster Contributions  
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**Background:** Stent expansion remains one of important predictors of restenosis and subacute thrombosis, even in use of drug-eluting stent. In addition, the bioresorbable vascular scaffold requires sufficient lesion preparation for their appropriate apposition. The aim of this study was to clarify the impact of lesion preparation using the scoring balloon on final stent expansion.

**Methods and Results:** Sixty-six consecutive de novo lesions were enrolled in this trial, and finally 52 non-calcified lesions (calcification <50% of circumference) treated with single 2.5-3.0 mm Cobalt-chromium Everolimus-eluting stent under optical coherent tomography (OCT) guidance without post-stenting dilation. Enrolled lesions randomly assigned to be performed single predilation either with semi-compliant scoring balloon or semi-compliant conventional balloon. Gaps between reference vessel area and predicted stent area were similar between groups (-10 vs. -2.3%,  $p=0.41$ ). Stent expansion was defined as the ratio of OCT-measured minimum stent area to the predicted stent area. This ratio was significantly larger after predilation with scoring balloon (71 vs. 61%,  $p=0.017$ ), and a greater percentage of stents had final minimum stent areas  $>5.0 \text{ mm}^2$  (27 vs. 4%,  $p=0.021$ ). Larger degrees of dissection-angle after balloon dilation was significantly more prevalent in scoring group ( $p=0.030$ ), and degrees of dissection positively associated with stent expansion in lesion with  $>90$  degree dissection ( $r=0.28$ ,  $p=0.044$ ). Quantitative coronary angiography (QCA) revealed similar extent of expansion at stent deployment (80 vs. 75 % to stent diameter,  $p=0.10$ ) followed with significantly larger minimum stent diameter in scoring group on final angiography (2.43 vs. 2.27 mm,  $p=0.049$ ), suggesting that lesion modification by scoring device may avoid acute stent recoil even in non-calcified lesions. Finally, patient clinical profile, lesion morphology, stent and lesion length, and reference vessel size did not affect stent expansion.

**Conclusion:** In this randomized study, pretreatment with the scoring balloon enhanced stent expansion and minimized the difference between predicted and achieved stent dimension.