SERIAL ANALYSIS OF THE MALAPPOSED AND UNCOVERED STRUTS OF THE NEW GENERATION OF EVEROLIMUS-ELUTING BIORESORBABLE SCAFFOLD USING OPTICAL COHERENCE TOMOGRAPHY

i2 Oral Contributions
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Background: Malapposed and side-branch (SB) struts are associated with a lack of neointimal coverage using drug-eluting stents. Serial changes of incomplete strut/scaffold apposition (ISA), SB struts and uncovered struts of the everolimus-eluting bioresorbable vascular scaffold (BVS) at 6 month follow-up are still unknown. The aim of our study is to describe the serial changes of the ISA, SB and uncovered struts over a 6 month follow-up with the BVS.

Methods: Twenty-five patients of the ABSORB Cohort B study imaged with serial optical coherence tomography (OCT) at baseline and 6 months. Struts were classified as embedded, protruding, malapposed or located over a SB. At 6 month follow-up, the presence or absence of tissue coverage and/or attached thrombi was evaluated. Persistent-ISA (PISA) was defined when the same malapposed strut at follow-up was malapposed at baseline. Late acquired-ISA (LAISA) was defined when the same malapposed strut at follow-up was protruding or embedded at baseline.

Results: At baseline, 3686 struts were analyzed; 2554 (69%) were protruding, 951 (26%) were embedded, 128 (4%) were ISA and 53 (1%) were located over a SB. A total of 81% of ISA observed at baseline resolved as apposed struts at follow-up. At 6 months, 3905 struts were analyzed; 3838 (98%) were apposed, 32 (1%) were ISA and 35 (1%) were located over a SB. At follow-up, ISA were more frequently caused by PISA rather than LAISA (81% vs. 16%, respectively; 3% were unmatchable). LAISA were observed in two patients due to emergent scaffold pattern irregularities. Uncovered struts were observed in 63 struts (2%) and were more frequent in malapposed and SB struts than in apposed struts (29% vs. 1%; p<0.01). Thrombi were observed in 14 frames (3%) and were frequently located in those images with ISA and/or uncovered struts.

Conclusions: Malapposed and uncovered struts are uncommon with the BVS. Most of the ISA observed at baseline resolved at 6 months and LAISA were only observed in a few struts due to acquired scaffold pattern irregularities. Uncovered struts were related to malapposed and SB struts.