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## CHANGES IN THE FIBROUS CAP THICKNESS COVERING LIPID POOL AFTER DRUG ELUTING STENT IMPLANTATION - OCT STUDY

Poster Contributions

Poster Hall B1

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Authors: Tomoya Ueda, Shiro Uemura, Yoko Dote, Yutaka Goryo, Yu Sugawara, Satoshi Okayama, Makoto Watanabe, Yoshihiko Saito, Nara Medical University, Nara, Japan

**Background:** The thin fibrous cap covering large lipid pool is known as one of the risks for coronary plaque rupture and subsequent acute coronary events. However, little is known about the influence of drug eluting stent (DES) implantation on the tissue characteristics of coronary plaque with lipid accumulation at chronic phase. The purpose of this study was to examine the changes in the fibrous cap thickness and the degree of lipid pool at proximal stent-edge segment after DES implantation using frequency domain optical coherence tomography (FD-OCT).

**Methods:** In this study, 91 consecutive patients with coronary artery disease who received FD-OCT guided DES implantation were enrolled (65.9 years old, 24 female and 67 male). Of 111 DES, 64 landing sites of proximal edge were placed on the atheromatous plaque with any degree of lipid accumulation at implantation. The second FD-OCT examination was performed 9 months after DES implantation, and the changes in fibrous cap thickness and the lipid arc were assessed on the 64 pairs of the OCT cross-sectional images at proximal stent edge.

**Results:** At DES implantation, mean thickness of fibrous cap was  $0.14 \pm 0.09$  mm, and the lipid arc was  $157 \pm 83$  degree at proximal edge. At follow-up examination, the thickness of fibrous cap was increased in 93.7% of lipid-containing plaque (from  $0.14 \pm 0.09$  to  $0.23 \pm 0.10$ ,  $p < 0.05$ ). Lipid arc at proximal stent edge was significantly decreased in 90.7% of plaque (from  $157 \pm 83$  to  $103 \pm 54$  degree at follow-up). Especially, 17 vulnerable plaques with thin fibrous cap less than  $100 \mu\text{m}$  at baseline showed significant increase in fibrous cap thickness (from  $0.08 \pm 0.01$  to  $0.17 \pm 0.06$  mm,  $p < 0.0001$ ), indicating the stabilization of plaque characteristics at stent-edge segment.

**Conclusion:** When stent edge of DES were placed on the coronary plaque with lipid accumulation, most of these plaques transform into more stable characteristics at chronic phase.