Stabilization of High Risk Coronary Plaque on Optical Coherence Tomography and Near-Infrared Spectroscopy by Intensive Lipid-Lowering Therapy With Proprotein Convertase Subtilisin/Kexin Type 9 (PCSK9) Inhibitor

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A 70-year-old woman with hypertension and dyslipidemia underwent drug-eluting stent implantation in the mid-left anterior descending artery (LAD) due to acute coronary syndrome (ACS). Optical coherence tomography (OCT) during the index procedure showed lipid-rich plaque in non-culprit lesions of the proximal LAD and mid-right coronary artery (Figure B,E). Near-infrared spectroscopy-intravascular ultrasound (NIRS-IVUS) showed plaque with high lipid burden in both sites (Figure C,F). Intensive lipid-lowering therapy with combined strong statin and proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitor was started after the index procedure. Scheduled 10-month follow-up OCT and NIRS-IVUS showed increase in minimum fibrous cap thickness (from 80 μm to 130 μm) and decrease in lipid arc (from 169° to 110°) and in maximum lipid core burden index at 4 mm (max LCBI4 mm) at both sites (Figure B’,C’,E’,F’).

Lipid-rich plaque assessed on OCT and IVUS is a high risk for ACS.1 High low-density lipoprotein cholesterol (LDL-C) is one of the most important therapeutic targets for the stabilization of high-risk plaque. PCSK9 inhibitors dramatically decrease LDL-C, and prevent progression of atherosclerosis and atherosclerotic cardiovascular events in patients with coronary artery disease. Intensive lipid-lowering therapy with combined statin and PCSK9 inhibitor may have the potential for stabilization of high-risk plaque on OCT and NIRS-IVUS.

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