VASCULAR DISEASE

SIGNIFICANT DIFFERENCES IN CHANGES OF PLAQUE COMPOSITION AND VESSEL REMODELING BETWEEN PROGRESSION AND REGRESSION OF CORONARY ATHEROSCLEROSIS DURING STATINS THERAPY: SUB-ANALYSIS OF TRUTH STUDY

ACC Poster Contributions
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Background: The TRUTH study, a prospective, open-label, randomized multicenter trial, was designed to evaluate the effect of statins on coronary artery plaque composition in patients with stable or unstable angina by using Virtual Histology (VH)-intravascular ultrasound (IVUS). The aim of this sub-analysis was to examine the differences in changes of plaque composition and vessel remodeling between progression and regression of coronary atherosclerosis during statins therapy.

Methods: The study subjects consisted of 119 patients with stable or unstable angina who have undergone percutaneous coronary intervention (PCI) under VH-IVUS guidance and performed follow-up IVUS examination after 24 to 40 weeks of statins therapy (pitavastatin 4 mg/day or pravastatin 20 mg/day). Qualitative and quantitative changes of coronary artery parameters measured by VH-IVUS were compared between the progressors and the regressors of the plaque volume.

Results: The external elastic membrane (EEM) volume decreased significantly (-3.2%, p<0.0001) and the lumen volume tended to increase (2.2%, p=0.1280) in the regressors. On the other hand, the EEM volume tended to increase (0.82%, p=0.3366) and the lumen volume decreased significantly (-5.3%, p=0.0003) in the progressors. There was a positive correlation between the changes of the plaque volume and EEM volume (r=0.555, p<0.0001), and a weak negative correlation between the changes of the plaque volume and lumen volume (r=0.345, p=0.0001). There were no significant differences in the change of the 4 components except for the fibrous component. The fibrous component increased significantly in the progressors (0.41 mm3/mm, p=0.0002), but decreased in the regressors (-0.58 mm3/mm, p<0.0001). There was a strong positive correlation between the change of the plaque volume and change of the fibrous component (r=0.812, p<0.0001).

Conclusions: Coronary artery changed toward negative remodeling associated with increase of the lumen volume when plaque showed a regression. The difference in change of plaque composition between progression and regression of coronary atherosclerosis during statins therapy was due to change of the fibrous component.