

JCK Oral

JCK Oral 4 (II-JCKO4)

Kawasaki Disease/General Cardiology 1

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[II-JCKO4-05]Evaluation of coronary vascular destruction by Optical Coherence Tomography and coronary artery diameter in acute phase of Kawasaki disease

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Background

Kawasaki Disease (KD) induces panvasculitis, and results in destruction of vascular layers. Destruction of inner elastic lamina cause infiltration of medial smooth muscle cell (SMC) into intima. And SMC, which causes transformation, leads to vascular remodeling accompanied by stenosis/occlusion of the coronary artery in remote stage. Optical Coherence Tomography (OCT) can identify destructive findings of the three-layer structure of coronary vessels. We examine how the disruption of vascular structure by OCT correlates with the diameter of coronary artery in acute phase.

Methods

OCT could be performed in chronic phase of nine KD cases. Their coronary diameter in acute stage was extracted from the acute phase echocardiogram findings, or coronary angiogram findings (CAG) executed within 6 months after onset of KD. The coronary artery was divided into nine segments of RCA: Seg. 1, 2, 3, 4, LCA: Seg. 5, 6, 7, 8, 11. In OCT, the presence or absence of vascular breakage was evaluated. Correlation between the coronary diameter and the presence or absence of circumferential 3-layer destruction of the coronary artery was examined.

Results

The relation of coronary diameter and the presence or absence of 3-layer destruction is, presence n=17: 4.8 ± 1.5 mm, absence n=12: 2.6 ± 1.1 mm ($p=0.002$), in echocardiography, and presence n=15: 4.9 ± 1.7 mm, absence n=27: 2.3 ± 0.8 mm ($p<0.001$), in CAG. Destructive findings of 3-layer structure increased both in echocardiogram and CAG when the coronary artery diameter exceeded 4 mm.

Conclusions

When the acute coronary artery diameter exceeds 4 mm, the risk of coronary artery structural destruction increases. In order to accurately predict coronary remodeling at the remote period, factors other than diameter, such as region of CAL or degree of inflammatory response in the acute phase, should also be considered.