

¹Fukuyama Cardiovascular Hospital

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Purpose- To investigate the neointimal change after target lesion revascularization (TLR) for in-stent restenosis (ISR) with optical coherence tomography (OCT). **Methods-** We analyzed 12 patients (12 lesions) who were treated with cutting balloon angioplasty (CBA) for ISR and suffered repeat-ISR that needed repeat-TLR evaluated by serial OCT. The site showing the most stenotic lumen in the 1st ISR-OCT image was selected for analysis. The OCT signal patterns were categorized into 4 patterns: (1) homogeneous high-signal band, (2) heterogeneous mixed-signal band, and (3) lipid-laden intima. **Results-** Serial imaging tests were performed at a mean interval of 161 ± 89 days after the index TLR because of repeat-ISR. Restenotic pattern was similar between the 1st and 2nd ISR, including lesion length, minimum lumen area, and percent plaque area (6.7 ± 3.2 mm vs. 7.7 ± 6.4 mm, 1.1 ± 0.4 mm² vs. 1.2 ± 0.2 mm², and 88.2 ± 3.1 % vs. 87.7 ± 2.6 %, *p*=ns, respectively). The 1st ISR-OCT image consisted of homogeneous high-signal band in 5 patients (41%), heterogeneous mixed-signal band in 4 patients (34%), and lipid-laden intima in 3 patients (25%). All neointima of the 1st ISR, except for 1 heterogeneous mixed-signal band, translated into homogeneous high-signal band at the repeat-ISR. Thrombus was more often seen in 2nd ISR than in 1st ISR (100% vs. 59%, *p*=0.04). **Conclusions-** The neointimal difference which was seen at the 1st ISR no longer exists at the repeat ISR. This may lead to a better understanding of the different mechanism between 1st and 2nd ISR.