OPTICAL COHERENCE TOMOGRAPHY GUIDED CORONARY INTERVENTION IS USEFUL TO DECIDE THE STRATEGY FOR IN-STENT RESTENOSIS LESIONS AFTER DRUG-ELUTING STENT IMPLANTATION

i2 Poster Contributions
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Background: The restenosis lesions after drug-eluting stent (DES) implantation showed various imaging by optical coherence tomography (OCT). We have experienced that low intensity tissue in stent restenosis (ISR) lesions with OCT images disappeared after balloon dilatation. In this study, we investigated whether OCT images could predict the response of balloon angioplasty and the frequency of recurrent target lesion revascularization (TLR) in the percutaneous coronary intervention (PCI) for ISR after DES implantation.

Methods: Study population consisted of 25 patients presenting with angiographically documented focal DES restenosis (≤10mm). All of them were treated only with balloon angioplasty and received OCT examination before and after balloon angioplasty. We measured neointimal volume and analyzed neointimal intensity (divided 1 to 256 levels) of DES restenotic lesions with OCT images. Study population was divided into two groups according to the median of the pre dilatation neointimal intensity: lower and higher group. We observed the changes of neointimal intensity and compared the frequency of recurrent TLR after the balloon angioplasty between the two groups.

Results: The average time from stent implantation was 16 months. %-reduction of neointimal volume after balloon angioplasty was correlated with neointimal intensity of the pre balloon dilatation (y=-0.98x +111, R2=0.57). In the higher intensity group, there were no significant changes of intensity before and after the balloon angioplasty (pre vs. post; 78vs. 82, p=0.12), while in the lower intensity group, there were significant changes of intensity before and after balloon angioplasty (pre vs. post; 56vs. 77, p<0.0001). This result means that in DES restenotic lesions, lower intensity neointima more easily disappeared and scattered into distal coronary and obtained the bigger luminal area compared to higher intensity neointima. And recurrent TLR at 6-month after the balloon angioplasty was significantly lower in lower intensity group compared to higher intensity group (8% vs. 42%, p<0.0001, respectively).

Conclusion: OCT guided PCI is useful to decide treatment strategy for DES restenosis lesions.