NEOINTIMAL CHANGES DURING AN EXTENDED PERIOD AFTER BARE-METAL STENT IMPLANTATION: INSIGHTS FROM INTERGRADED BACKSCATTER INTRAVASCULAR ULTRASOUND ANALYSIS

i2 Poster Contributions
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Background: Progressive lumen narrowing presenting with angiographic in-stent restenosis (ISR) is significantly associated with late adverse event such as thrombosis and myocardial infarction beyond 4 years after BMS implantation. However, the neointimal features inside the BMS have not been fully evaluated. We assessed the neointimal characteristics of bare-metal stent (BMS) in extended late phase using integrated backscatter intravascular ultrasound (IB-IVUS).

Methods: We enrolled 30 patients who underwent target lesion revascularization due to ISR after BMS implantation. According to the duration of BMS implantation, we divided these patients into the 2 group: the early phase group (6-12 months, n=15) and the late phase group (≥4 years, n=15). Neointimal tissue characterization was analyzed in the 10mm stent segment with minimal luminal area using IB-IVUS. The occupancy of 4 tissue types (calcified, dense fibrous, fibrous, and lipid) within neointima was evaluated.

Results: There were no significant differences in stent size, stent length, neointimal volume, %calcified and %fibrous volume between the 2 groups. %lipid and %dense fibrous volume in the late phase group were significantly larger and smaller than those in the early phase group (5.1±5.5% vs. 14.6±6.2%, p=0.006; 19.4±8.3% vs. 30.7±10.6%, p=0.029, respectively). The appearance of ruptured plaque and lipid core was more frequent in the late phase group than the early phase group (20% vs. 0% and 26.6% vs. 0%, respectively; p<0.05).

Conclusion: This study indicates that neointima may transform into lipid-rich tissue during an extended period after BMS implantation, and atherosclerotic progression within the BMS may contribute to late luminal narrowing.