Acute and Stable Ischemic Heart Disease

COMPARISON OF NEOINTIMAL APPEARANCE ASSESSED BY OPTICAL COHERENCE TOMOGRAPHY BETWEEN BARE-METAL STENTS AND SIROLIMUS-ELUTING STENTS BEYOND 10 YEARS FROM IMPLANTATION

Poster Contributions
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Background: Although sirolimus-eluting stents (SES) were widely used in early 2000s replacing bare-metal stents (BMS) with favorable restenosis rate, recent studies have doubted long-term safety of SES because of continuous increase in cumulative events beyond 10 years from its advent. Underlying mechanisms of residual risk of SES in very long-term have not been fully clarified. We sought to assess the morphological features of SES with stent age more than 10 years in comparison with BMS using optical coherence tomography (OCT).

Methods: We retrospectively analyzed a total of 92 stents without angiographical restenosis that were implanted more than 10 years before OCT examination including 24 SES and 68 BMS. OCT analysis included the presence or absence of lipid-laden neointima, calcification, macrophage accumulation, malapposed strut, evagenation, and intra-luminal thrombus. Lipid-laden neointima was defined as a signal-poor region with diffuse border precluding visualization of stent struts. Neoatherosclerosis was defined as the presence of lipid and/or calcification.

Results: Of all, median stent age was 12.4 (11.9-15.1) years and there was no significant difference between SES and BMS. Stent size and location did not significantly differ between the two groups. Lipid-laden neointima was more frequent in SES than in BMS (42% vs. 21%, p=0.043), while the frequency of calcification and macrophage accumulation were not significantly different between the two groups (33% vs 22%, p=0.273 and 42% vs 43%, p=0.933, respectively). Neoatherosclerosis was identified in 58% of SES and 34% of BMS (p=0.035). Uncovered strut was detected more frequently in SES than in BMS (21% vs 3%). Evagenation was more frequently observed in SES than in BMS (42% vs 15%, p=0.006).

Conclusions: More frequent neoatherosclerosis and evaginations were observed in non-restenotic SES beyond 10 years after implantation compared with BMS, which may explain the continuous risk of adverse events after SES.