Background: Noninferiority of biolimus-eluting stent (BES, Nobori) to everolimus-eluting stent implantations (EES, Xience) in clinical outcomes of drug-eluting stent (DES) implantation has been reported; however, the difference in long-term clinical and angiographic outcomes between these in the real world was little known. We aimed to compare the two-year clinical and angiographic outcomes between BES and EES.

Methods: From 2010 to 2012, 4754 lesions received DES implantation: EES, 3391 lesions and BMS, 1363 lesions. Midterm angiographic follow-up was scheduled at 8 months, 1 year, 1st-gen DES showed restenosis with neoatherosclerosis even <1 year, and while only limited cases were available for 2nd-gen DES >1 year, 1st-gen DES showed increased involvement of neoatherosclerosis in restenosis over time, accounting for 31% of restenosis between 1 and 3 years and 78% of restenosis >3 years.

Conclusions: Substantial involvement of neoatherosclerosis in late stent failure is observed in both BMS and DES, which increases over time.

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Two-year Clinical and Angiographic Outcomes Compared Between Biolimus-and Everolimus-eluting Stent Implantations in Real-world Practice

Masanobu Ohy1, Kazuhide Kadota2, Seiji Habara1, Takeshi Tada1, Hirokazu Tanaka1, Yasushi Fukui1, Tsuyoshi Goto1, Kazuaki Mitsudo1

Kurashiki Central Hospital, Okayama, Japan

Background: The prevalence of VLST (>1 year) was greater in 1st-gen DES (19%) as compared with BMS (3%) and 2nd-gen DES (0%), where in-stent plaque rupture from neoatherosclerosis accounted for 83% of VLST in BMS (5 of 6) and 15% of VLST in 1st-gen DES (5 of 33). The involvement of neoatherosclerosis in VLST increased with time; for duration of implants >3 years, all VLST in BMS (5 of 5) and 33% of VLST in 1st-gen DES (4 of 12) were attributed to in-stent rupture. VLST from in-stent rupture occurred earlier in 1st-gen DES (1434±579 days) vs. BMS (2376±545 days). Of the 10 lesions with in-stent rupture, only 4 (BMS=3, 1st-gen DES=1) had in-stent restenosis. In BMS, restenosis with underlying neoatherosclerosis was observed only >3 years, and neoatherosclerosis accounted for 38% of BMS restenosis >3 years. In contrast, both 1st- and 2nd-gen DES showed restenosis with neoatherosclerosis even <1 year. Meanwhile, in a sub-group analysis, BES was significant differences in the rates of mid-term restenosis (7.9% vs. 8.6%, p=0.51), late catch-up phenomenon (5.8% vs. 4.4%, p=0.13), and TLR (6.4% vs. 7.0%, log-rank p=0.47). Meanwhile, in a subgroup analysis, BES was significantly more effective than EES to prevent late catch-up phenomenon in lesion length ≥30 mm and ostial lesion in the right coronary artery (see figure).

Conclusions: The treatment effect on late catch-up phenomenon compared between BES and EES implantations could depend on specific lesion characteristics.