Aims: In drug-eluting stent (DES) restenosis, the contribution of drug hyporesponsiveness is poorly defined. We sought to evaluate if, in the setting of treatment for in-stent restenosis, the relative efficacy of sirolimus-eluting stents (SES) and of paclitaxel-eluting stents (PES) depends on the underlying substrate in which the stents are implanted, i.e., on whether the restenosis occurs within bare metal stents or within SES. Methods and results: We pooled data from the ISAR-DESIRE and ISAR-DESIRE 2 randomised trials and analysed outcomes in SES-treated and PES-treated patients. In all, 650 patients were included. Angiographic follow-up was available for 87% of patients. In SES-treated patients, both late loss (LL) and percentage diameter stenosis (%DS) were lower in patients treated for bare metal stent restenosis compared with SES restenosis (0.21±0.59 mm versus 0.41±0.66 mm, p=0.007; 27.6±19.4% versus 34.0±20.9%, p=0.015, respectively). In PES-treated patients, LL and %DS were similar in patients treated for bare metal stent restenosis compared with SES restenosis (0.48±0.59 mm versus 0.39±0.71, p=0.47; 33.5±22.2% versus 32.7±18.6%, p=0.75, respectively). Similarly, in
terms of overall clinical efficacy, in SES-treated patients clinical outcomes were better in patients with bare metal stent restenosis compared with SES restenosis while in PES-treated patients outcomes were similar in both groups. At multivariate analyses the use of SES to treat restenosis within SES was predictive of both higher LL and %DS. Conclusions: The efficacy of sirolimus-eluting but not paclitaxel-eluting stents is significantly reduced when used for treatment of SES restenosis as compared to bare metal stent restenosis. The lower antirestenotic efficacy following SES implantation in patients with SES restenosis may support a role for drug resistance in restenosis within these stents.

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