

### Early restenosis and late catch-up phenomenon after newer biodegradable- and durable-polymer drug-eluting stent implantations

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**Background:** It is yet to be known whether mechanisms underlying restenosis in newer-generation durable-polymer (DP) and biodegradable-polymer (BP) drug-eluting stents (DES) are different.

**Purpose:** This study aims to assess the incidences and predictors of early restenosis and late catch-up phenomenon after newer-generation durable-polymer (DP) and biodegradable-polymer (BP) DES.

**Methods:** Between 2010 and 2017, 13858 lesions in 6350 patients were treated with DES (4393 BP-DES, 9465 DP-DES). The early-term (within 1 year) and late-term (from 1 to 2 years) follow-up angiographies were scheduled. Late catch-up phenomenon was defined as in-stent restenosis (ISR) in lesions that evaded ISR within 1 year after stent implantation. ISR was defined as angiographic restenosis of more than 50%.

**Results:** The mean patient age was 71 years, and 76.7% were male. Early-term angiographies were performed in 10955 lesions (79.0%). Of those without early-term ISR, late-term angiographies were performed in 7771 lesions (56.1%). The incidences of mid-term restenosis and late catch-up phenomenon were 6.6% and 3.9%, respectively.

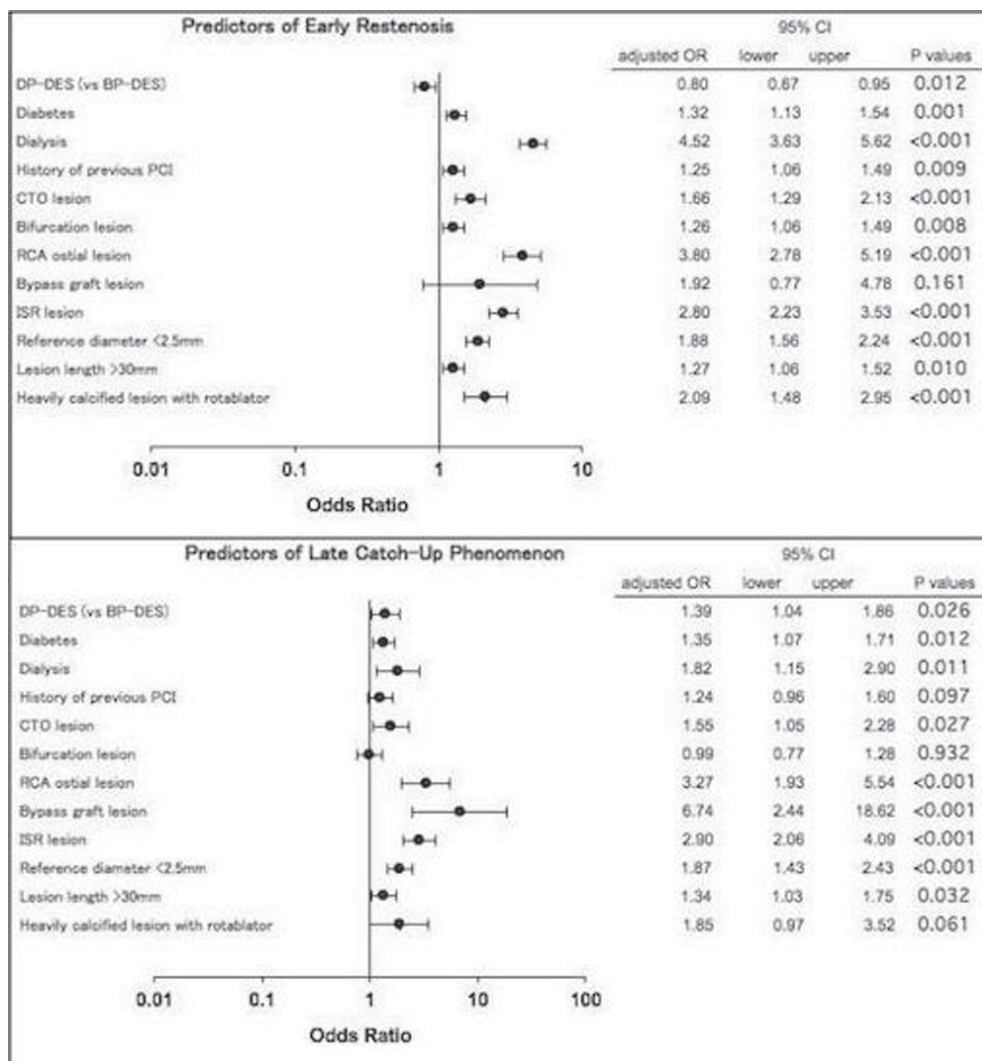
In the multivariate regression analyses, history of diabetes, hemodialysis

and previous PCI were independent predictors of both early restenosis and late catch-up phenomenon. Also, some lesion characteristics such as chronic total occlusion, right coronary artery ostial lesion, small vessel (defined as reference diameter <2.5mm), long lesion (defined as lesion length >30mm) and treatment of ISR lesion were independent predictors of both early restenosis and late catch-up phenomenon.

Bifurcation lesion and heavily calcified lesion treated with rotablator were independent risk of early restenosis. Bypass graft lesion was an independent predictor of late catch-up phenomenon.

Early restenosis was observed less frequently in DP-DES than in BP-DES (6.3% versus 7.4%, P=0.012). On the contrary, late catch-up phenomenon was observed more frequently in DP-DES than in BP-DES (4.3% versus 2.9%, P=0.026).

**Conclusions:** Some lesion characteristics were independent predictors of early restenosis and late catch-up phenomenon after newer-generation DES implantation. The deployment of BP-DES resulted in more early restenosis and less late catch-up phenomenon compared to that of DP-DES.



Early Restenosis and Late Catch-Up