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Twelve-month clinical outcomes of "nano-crush technique" for the treatment of bifurcation lesions using ultra-thin (60 µm) sirolimus-eluting coronary stents



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Abstract

Background: Provisional stenting is preferred for bifurcation lesion; however, certain anatomical substrate does require two stents as a part of dedicated stent technique. Here, the present study evaluated outcomes of ultra-thin (60 µm) Supra family sirolimus-eluting stent (SES) (Sahajanand Medical Technologies Limited, Surat, India) for dedicated bifurcation lesions using nano-crush technique at 12 months angiographic follow-up.

Methods: This was prospective, single-center observational study which enrolled patients with de novo bifurcation lesion and underwent angioplasty with Supra family SES using nano-crush technique at a tertiary care center in India, between March-2017 and February-2019. Primary endpoint at 12 months was target lesion failure (TLF), a composite of cardiac death, target vessel myocardial infarction (TV-MI), and clinically driven target lesion revascularization (CD-TLR). Secondary endpoints included patient-oriented composite endpoint (POCE), all-cause death, any revascularization, clinically driven target vessel revascularization, stent thrombosis, periprocedural and spontaneous MI, and device failure.

Results: The study enrolled total 63 patients with a mean age of 62.5±4.9 years and had male dominance (89%). Left main (LM) bifurcation and non-LM bifurcation were observed in 21 (33%) and 42 (67%) patients, respectively. Total 50 (80%) patients had Medina class- 1,1,1. At 12 months, TLF occurred in 4 (6%) patients which included one cardiac death (1.5%), two (3.0%) TV-MI, and one CD-TLR (1.5%). POCE was observed in 6 (9.6%) patients. Stent failure was seen in 2 (3.1%) patient and one patient (1.5%) developed late stent thrombosis. Twelve months angiographic follow-up indicated intact stent patency in all other patients. On multivariate analysis, LM bifurcation, renal dysfunction, LM bifurcation with renal dysfunction, ejection fraction (<35%) and calcified lesion were found as predictors of TLF.

Conclusions: Dedicated stenting with ultra-thin Supra family SES for complex bifurcation lesion using nano-crush technique reported acceptable clinical outcomes among real-world patients and can be performed safely with ease without any procedural complications.

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