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Initial and Mid-term clinical outcome of longitudinal stent deformation after drug-eluting stent implantation

Background: Longitudinal stent deformation (LSD) has been recently recognized especially in modern thinner-strut drug-eluting stent (DES). However, it is unclear whether LSD causes subsequent clinical event such as stent thrombosis. To address the issue, we retrospectively evaluated initial and mid-term clinical outcome of patients with LSD after DES implantation. Method: A total of 1817 PCI with 2826 DES at our institute from September 2010 to December 2012 were reviewed. Sixteen LSD were identified in 15 patients with 16 DES; two Taxus Elements, two Endeavor stents, two Nobori stents and ten Promus Element stents. The procedural and 6-months clinical outcome was evaluated. Result: LSD occurred in the LMT in 19%, LAD in 50%, and RCA in 31%. 3 cases were caused by guide catheter manipulation; 3 by IVUS catheter, 7 by post-dilation balloon, 3 by additional stent, and 1 by inner catheter. All LSD was successfully treated with additional ballooning (69%) or stenting (31%). During 6-months after LSD, none had stent thrombosis or cardiac death; however, non-fatal myocardial infarction due to target vessel failure occurred in one patient with chronic renal failure on hemodialysis. Conclusion: If LSD was appropriately treated, LSD may not relate to poor prognosis during 6-months follow-up. Further studies are needed to clarify long-term clinical outcome.