

## Long-Term Results of Coronary Bifurcation Stenting with Drug Eluting Stents

**Authors :** Piotr Muzyk, Beata Morawiec, Mariusz Opara, Andrzej Tomasik, Brygida Przywara-Chowaniec, Wojciech Jachec, Ewa Nowalany-Kozielska, Damian Kawecki

**Abstract :** Background: Coronary bifurcation is one of the most complex lesion in patients with coronary artery disease. Provisional T-stenting is currently one of the recommended techniques. The aim was to assess optimal methods of treatment in the era of drug-eluting stents (DES). Methods: The registry consisted of data from 1916 patients treated with coronary percutaneous interventions (PCI) using either first- or second-generation DES. Patients with bifurcation lesion entered the analysis. Major adverse cardiac and cardiovascular events (MACCE) were assessed at one year of follow-up and comprised of death, acute myocardial infarction (AMI), repeated PCI (re-PCI) of target vessel and stroke. Results: Of 1916 registry patients, 204 patients (11%) were diagnosed with bifurcation lesion >50% and entered the analysis. The most commonly used technique was provisional T-stenting (141 patients, 69%). Optimization with kissing-balloons technique was performed in 45 patients (22%). In 59 patients (29%) second-generation DES was implanted, while in 112 patients (55%), first-generation DES was used. In 33 patients (16%) both types of DES were used. The procedure success rate (TIMI 3 flow) was achieved in 98% of patients. In one-year follow-up, there were 39 MACCE (19%) (9 deaths, 17 AMI, 16 re-PCI and 5 strokes). Provisional T-stenting resulted in similar rate of MACCE to other techniques (16% vs. 5%,  $p=0.27$ ) and similar occurrence of re-PCI (6% vs. 2%,  $p=0.78$ ). The results of post-PCI kissing-balloon technique gave equal outcomes with 3% vs. 16% of MACCE in patients in whom no optimization technique was used ( $p=0.39$ ). The type of implanted DES (second- vs. first-generation) had no influence on MACCE (4% vs 14%, respectively,  $p=0.12$ ) and re-PCI (1.7% vs. 51% patients, respectively,  $p=0.28$ ). Conclusions: The treatment of bifurcation lesions with PCI represent high-risk procedures with high rate of MACCE. Stenting technique, optimization of PCI and the generation of implanted stent should be personalized for each case to balance risk of the procedure. In this setting, the operator experience might be the factor of better outcome, which should be further investigated.

**Keywords :** coronary bifurcation, drug eluting stents, long-term follow-up, percutaneous coronary interventions

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