

CORONARY INTERVENTIONS: TECHNIQUE

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Distal left main trifurcation treatment with dedicated bifurcation stents: subgroup analysis from randomized clinical trials POLBOS I and POLBOS II

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Introduction: Left main (LM) trifurcations are encountered in about 10–20% of LM cases and may require specific treatment strategies.

Purpose: The aim of this retrospective analysis was to assess the effectiveness and safety of dedicated bifurcation BiOSS stents deployed in LM trifurcations in patients with stable coronary artery disease (CAD) and NSTEMI-ACS.

Methods: BiOSS stents are a family of coronary dedicated bifurcation balloon expandable stents made of stainless steel. They are coated with a biodegradable polymer comprised of lactic and glycolic acids. The stent consists of two parts with different diameters connected with two struts. BiOSS Expert elutes paclitaxel and BiOSS LIM elutes sirolimus.

We retrospectively analyzed data from BiOSS Expert Registry, international randomized clinical trial POLBOS I with BiOSS Expert, BiOSS LIM Registry and international randomized clinical trial POLBOS I with BiOSS LIM. Patients were enrolled between 2010 and 2013 in centers in Poland, Spain and Bulgaria with a final diagnosis of stable CAD or NSTEMI-ACS who sign informed consent were enrolled. Patients with STEMI or Medina type 001 bifurcation lesions were excluded from the registry. An angiographic control was planned at 12 months. The primary end-point was the rate of cardiac death, myocardial infarction (MI), and target lesion revascularization at 12 months.

Results: The analyzed population counted of 345 patients, in whom 131 patients had BiOSS stent deployed in the distal LM. In this subgroup we identified 75 cases (72.8%) with distal LM bifurcation and 28 cases (27.2%) with distal LM trifurcation. Additionally, we differentiated three subgroups among trifurcations: treated with only BiOSS stent (group I: n=5, 17.9%), treated with 2 or 3 stent technique (group II: n=15, 53.6%) and pseudo-trifurcations with high take off of diagonal or marginal branches (group III: n=8, 28.5%).

The mean age of enrolled patients (82.1% males) was 66.8±9.77 years. Patients with trifurcation had more frequently hypertension (p<0.01) and underwent prior PCI (p<0.01) comparing with patients with bifurcations.

All BiOSS stents were implanted successfully. The mean nominal stent parameters were as followed: 4.09±0.33mm x 3.44±0.38mm x 16.99±2.1mm. In 19 (67.9%) cases the second stent was implanted within the side branch, mainly in TAP technique. Proximal optimization technique was performed in 23 cases (82.1%). There were 64.3% of cases performed from radial access, and 21.4% - using 7F guiding catheter. In 6 cases (21.4%) periprocedural MI was diagnosed. At 12 months there was no statistically significant differences between groups in MACE rates, 0, 13.3% (n=2), 12.5% (n=1), respectively. At ESC 2018 we will present data from the 5-year follow-up.

Conclusions: Distal left main trifurcations are challenging lesions. Dedicated bifurcation BiOSS stents seem feasible devices with promising safety profile and mid-term clinical effectiveness.

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Procedural and angiographic outcomes of main-branch stenting with side-branch drug-coated balloon inflation strategy for bifurcation lesions

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Background: Single stenting with kissing balloon technique (KBT) is a standard strategy for bifurcation lesions. Two-stent strategy should be considered for large stenotic side branches, but it is unsuitable for small side branches. Drug-coated balloon (DCB) inflation following main-branch stenting is potentially useful to maintain the patency of small side branches with a large perfusion area.

Methods: We investigated baseline, procedural, and angiographic outcomes of 84 bifurcation lesions (79 patients) undergoing DCB inflation for side branches with a main branch stenting using drug-eluting stents (DES) between June 2016 and June 2017.

Results: The prevalence of acute coronary syndrome was 30.4% and that of true bifurcation lesions was 88.1%. Left main bifurcation/trifurcation lesions accounted for 19.0%. The mean size of DES implanted in the main branches was 2.84±0.45mm. The mean DCB size was 2.13±0.29 mm and the mean DCB inflation pressure was 9.3±3.3 atm. Final kissing balloon inflation was performed on 84.5%. After DCB inflation, larger reference diameter (2.21±0.37 mm to 2.34±0.45 mm, p<0.001), larger minimum lumen diameter (0.61±0.42 mm to 1.51±0.45 mm, p<0.001), and smaller diameter stenosis (73.3±22.8% to 35.8±13.9%, p<0.001) were obtained. Acute gain was 0.89±0.51mm. Despite side-branch slow flow occurring in one lesion, there was no in-hospital death and stent/side-branch thrombosis. In 61 patients (63 lesions) undergoing follow-up coronary angiography, minimum lumen diameter became significantly larger

(1.52±0.45 mm to 1.63±0.45 mm, p=0.03) and diameter stenosis became significantly smaller (35.9±14.4% to 29.9±13.8mm, p=0.006) from postprocedure to 8-month follow-up. Mean late lumen loss was -0.11±0.40 mm, and no target lesion revascularization was performed at 8 months.

Conclusion: Procedural and angiographic outcomes of the “single stenting with DCB inflation strategy” were acceptable. Late lumen enlargement can be expected in the side branches undergoing DCB inflation.

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Impact of intravascular ultrasound and final kissing balloon dilatation on 10-year clinical outcome in percutaneous revascularization with 1-stent strategy for left main coronary artery stenosis

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Background: It remains uncertain whether intravascular ultrasound (IVUS) use and final kissing balloon (FKB) dilatation would be beneficial for percutaneous coronary intervention (PCI) with simple 1-stent technique in unprotected left main coronary artery (LMCA) stenosis.

Purpose: To investigate impact of IVUS use and FKB dilatation on long-term major adverse cardiac events (MACE) in PCI with simple 1-stent technique for unprotected LMCA stenosis.

Methods: Two-hundred five patients underwent PCI for LMCA stenoses were analyzed. Long-term MACEs were defined as death, non-fatal myocardial infarction, and repeat revascularizations.

Results: The IVUS examination and FKB dilatation was done in 158 (62.0%) and 119 (46.7%), respectively. IVUS use (20.3% versus 41.2%; p<0.001), not FKB dilatation (30.3% versus 26.5%; p=0.288), significantly reduced MACEs. IVUS use was a negative predictor of MACEs (hazards ratio [HR] 0.52, p=0.015), whereas FKB dilatation (HR 1.70, p=0.045) was a positive predictor of MACEs. In bifurcation LMCA stenosis, IVUS use (18.7% versus 48.0%; p<0.001) significantly reduced MACEs. In non-bifurcation LMCA stenosis, FKB dilatation showed a trend increased MACEs (p=0.075).

Conclusion: IVUS examination is helpful in reducing clinical events in PCI for LMCA bifurcation lesions, whereas unnecessary FKB dilatation after 1-stent technique might be harmful in non-bifurcation LMCA stenosis.

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Trends and clinical outcomes of percutaneous coronary intervention for chronic total occlusions - Results from an Australian multi-centre interventional registry

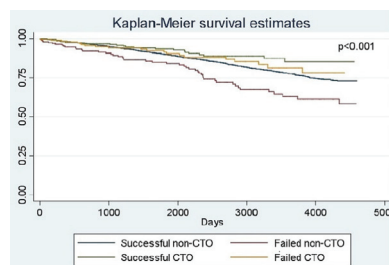
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Background: Improved technology and innovative techniques of have increased the use of percutaneous coronary intervention (PCI) for chronic total occlusions (CTO) over the last decade. Some studies have suggested that this has resulted in improved clinical outcomes.

Objectives: The objectives of this study are to describe trends and clinical outcomes of PCI of CTO in Victoria, Australia over the past 12 years.

Methods: Data were analysed from the Melbourne Interventional Group registry for non-acute coronary syndrome patients presenting for single vessel PCI between 2005 and 2017. Multivariate Cox proportional hazards analysis was performed to determine predictors of CTO PCI procedural success and clinical outcomes, including National Death Index (NDI)-linked mortality using a successful non-CTO PCI comparator population.

Results: There were 514 CTO PCI cases recorded over the study period. Successful CTO PCI rates were achieved in 59%, but did not improve over the study time period. When CTO PCI was unsuccessful, patients experienced greater short- and long-term complications including increased in-hospital major bleeding, unplanned CABG, along with higher 30-day and 12-month MACCE rates.



Kaplan-Meier survival estimates