**Bifurcation and Left Main Stenting**

**(TCTAP A-004 to TCTAP A-005)**

**TCTAP A-004**

**Optimal Strategy for Bifurcation Lesions: CROSS and PERFECT Trials**

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**Background:** In spite of many clinical studies, bifurcation coronary lesions still remain a lesion subset demanding complex procedure and relatively high complication rate with percutaneous coronary intervention.

**Methods:** Two parallel randomized studies were performed to compare the two stenting techniques, which have been most popularly used for bifurcation coronary lesions with diseased and non-diseased SB. The Choice Of Optimal Strategy For Bifurcation Lesions With Normal Side Branch (CROSS) study evaluated the role of routine final kissing balloon (FKB) inflation as compared with selected use of FKB for bifurcation lesions with non-diseased SB. Another randomized study of Optimal Stenting Strategy For True Bifurcation Lesions (PERFECT) study compared the crush technique and provisional T-stenting technique for bifurcations with diseased SB. The two studies were designed with two separate protocols, however, has been performed in the same study period to consecutively enroll all potential candidates of bifurcation lesions. The CROSS and PERFECT trials were a prospective, open-label, randomized studies. Patients were eligible for the study if they were 18–75 years old and had angina with bifurcation coronary disease requires protection in which the main branch had reference diameter ≥ 2.5 mm and lesion length ≤ 50 mm and the side branch (SB) has reference diameter ≥ 2.0 mm. Exclusion criteria were unprotected left main disease, stent restenosis, graft lesions, chronic total occlusion, ST-elevation myocardial infarction within 2 weeks, decreased SB flow, renal failure, low left ventricular ejection fraction ≤ 35%, and serious comorbidities with life expectancy < 1 year. If patients met the inclusion and exclusion criteria, SB stenosis by visual estimation determine the inclusion of CROSS for SB with stenosis < 50% and PERFECT study for SB with stenosis ≥ 50% and length < 20 mm, respectively.

**Results:** The final angiographic and clinical results will be presented at TCTAP 2014.

**Conclusion:** The CROSS and PERFECT study will be helpful to understand the outcomes of different stenting techniques and select optimal stenting technique for patients with bifurcation coronary lesions.

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**TCTAP A-005**

**Randomized Comparison of Coronary Bypass Surgery with Drug-Eluting Stenting for the Treatment of Left Main Coronary Artery Disease: 3-Year Follow-Up of the PRECOMBAT Trial**

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**Background:** Long-term randomized comparisons of percutaneous coronary intervention (PCI) to coronary artery bypass grafting (CABG) in patients with left main coronary (LM) disease have been limited. We compared 3-year outcomes in patients with LM disease treated with CABG or PCI with sirolimus-eluting stents.

**Methods:** We randomly assigned patients with unprotected left main coronary artery stenosis to undergo CABG (300 patients) or PCI with sirolimus-eluting stents (300 patients). We analyzed a composite rate of major adverse cardiac or cerebrovascular events [MACCE: death from any causes, myocardial infarction (MI), stroke, or ischemia-driven target-vessel revascularization (TVR)] at 3-year follow-up on an intention-to-treat basis.

**Results:** At 3 years, MACCE (14.5% vs. 9.4%, P = 0.039) were elevated in the PCI arm. However, rates of the composite safety endpoint (death/stroke/MI 6.1% vs. 6.0%, P = 0.76) were not significantly different between treatment groups. Individual components of outcomes including death from any causes (3.7% vs. 4.4%, P = 0.82), MI (1.4% vs. 1.0%, P = 0.48), and stroke (1.0% vs. 1.0%, P = 0.99) were not significantly different. Ischemia-driven TVR was significantly higher in PCI arm (9.3% vs. 4.1%, P = 0.014).

**Conclusion:** At 3 years, the occurrence of the composite of death, MI, and stroke were comparable between groups, but ischemia-driven TVR had been significantly increased in PCI– compared with CABG-treated patients since 1 year after the treatment.