

BIFURCATION/LEFT MAIN DISEASES AND INTERVENTION (TCTAP A-054 TO TCTAP A-057)

TCTAP A-054

Drug Eluting Stent Reduces All Causes Mortality in Left Main Stenting When Compared with Bare Metal Stent (Hong Kong Left Main Stenting Registry)



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BACKGROUND Drug-eluting stents (DES) compared with bare-metal stents (BMS) reduce target vessel revascularization (TVR) rate. Data of DES versus BMS in long-term survival after percutaneous coronary intervention are so far inconclusive. The aim of this retrospective study was to examine the medium-term clinical outcome of DES versus BMS in left main (LM) stenting.

METHODS From January 2007 to December 2010, 550 consecutive patients who underwent LM stenting in 8 public hospitals in Hong Kong were recruited for retrospective analysis. Clinical follow-up data were collected up till 30 June 2014.

RESULTS The age was 68 ± 11 years with male predominance (74%). Diabetes mellitus, hypertension, hypercholesterolemia and smoking history was present in 241 (44%), 359 (65%), 410 (75%) and 244 (44%) patients respectively. Prior myocardial infarction (MI), prior stroke, peripheral vascular disease (PVD) and creatinine >200 mmol/L (CRI) was found in 212 (39%), 62 (11%), 14 (3%), and 28 (5%) patients respectively. An intra-aortic balloon pump was used in 73 (13%) patients and intravascular ultrasonography in 438 (80%) patients. Distal bifurcation disease was present in 406 (74%) patients. The two-stent technique was performed in 145 (26%) patients. The main branch stent size and length was 3.4 ± 0.5 mm and 22 ± 12 mm. High-pressure post-dilatation, and kissing balloon inflation was performed in 474 (86%) and 290 (53%) patients respectively. DES were used in 465 (85%) patients. One year rate of death, nonfatal MI, TVR and probable or definite stent thrombosis (ST) was 7.8%, 6%, 7.8% and 2% respectively. After follow-up for 242 ± 98 weeks, the rate of death, nonfatal MI, TVR, and ST was 19.6%, 9.1%, 11.6% and 3.6% respectively. By cox proportional hazard function analysis, old age, PVD, CRI and use of BMS were independent predictors of medium term all-causes death.

CONCLUSION Old age, PVD, and CRI were independent predictors of medium term all-causes death. Compared with BMS, DES prolong survival in patients receiving LM stenting.

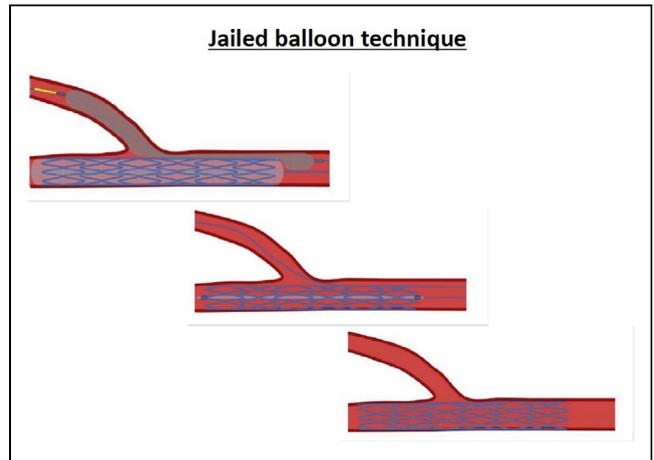
TCTAP A-055

Possible Mechanism of Jailed Balloon Technique for a Side Branch Protection at Stenting in Main Vessel: An Experimental Study



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BACKGROUND Jailed balloon protection (JBP) is a technique used when placing a stent in the main branch (MB) with a bifurcation that needs to be protected, accomplished by inflating a balloon in the side branch (SB). This technique has gained traction as a simple and quick way to avoid occlusion of the SB. In contrast, kissing balloon inflation (pre-stenting KBI) is a technique to inflate balloons in the MB and the SB prior to stent placement. This technique increases the stent volume proximal to the bifurcation of the MB and it effectively prevents a plaque shift at the ostium of the SB. The current study experimentally compared differences in expansion pressure near a vessel bifurcation as a result of JBP and pre-stenting KBI.



METHODS A silicone tube with an inner diameter of 3.0 mm, an outer diameter of 4.0 mm, and a length of 40 mm served to simulate the MB. For JBP, a Nobori stent with a diameter of 3 mm and a length of 24 mm was placed in the MB and a Ryujin balloon with a diameter of 2.0 mm and a length of 30 mm was placed in the SB. For pre-stenting KBI, a Nobori delivery balloon with a diameter of 3 mm and a length of 24 mm was placed in the MB and a Ryujin balloon with the same specifications mentioned above was placed in the SB. For both techniques, the expansion pressure in the MB was increased in 3 steps from 9 atm to 12 atm and then 16 atm. At the same time, the expansion pressure in the SB was increased in 3 steps from 4 atm to 8 atm and then 12 atm. A hole was made in the center of the silicone tube, and the tube was expanded with the central portion of the Ryujin balloon. The outer diameter of the silicone tube was measured at the bifurcation, i.e. the portion of the MB proximal to the SB, when both balloons were inflated, and the expansive force on the carina of the two balloon inflation techniques was compared. The outer diameter of the silicone tube was initially 4 mm but that diameter increased during JBP.

RESULTS The outer diameter of the silicone tube was 4.86 mm when pressure in the MB was 9 atm and pressure in the SB was 4 atm, it was 5.18 mm when pressure in the MB was 12 atm and pressure in the SB was 8 atm, and it was 5.43 mm when pressure in the MB was 16 atm and pressure in the SB was 12 atm. Similarly, the outer diameter of the silicone tube increased during pre-stenting KBI. The outer diameter of the silicone tube was 4.93 mm when pressure in the MB was 9 atm and pressure in the SB was 4 atm, it was 5.23 mm when pressure in the MB was 12 atm and pressure in the SB was 8 atm, and it was 5.58 mm when pressure in the MB was 16 atm and pressure in the SB was 12 atm. JBP was found to result in the less expansive force on the proximal portion of the MB and the ostium of the SB than pre-stenting KBI.

CONCLUSION The present experiment showed that JBP involves expansion of a tube near the bifurcation of the MB into the SB and placement of a stent. Thus, we considered that JBP protects SB at MV stenting by simultaneously scaffolding SB against plaque shift and carina shift.

TCTAP A-056

NANO CRUSH Technique for Bifurcation Stenting with Long Term Follow-Up: From Bench Test to Clinical Practice



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BACKGROUND Percutaneous intervention of Coronary Bifurcation stenosis still remains an enigma. The provisional stenting technique with a single stent crossover considered optimum in many of such cases. In bifurcation lesions supplying a large amount of myocardium, particularly where side branch is having long lesions from the ostium, a two-stent technique is sometimes necessary. All two-stent techniques have limitations, some are not fit for certain anatomies, some have more metal loads and some does not ensure optimum side branch opening.

We have introduced a new technique which can be performed in almost all anatomies, ensures minimum metal load and proper side branch opening.

METHODS In our technique in Medina 1:1:1 situations, after proper balloon dilatation of both the branches the SB stent is placed with