for surgical treatment. Owing to advances in intervention technology, in particular, the rotational atherectomy and cutting balloon, this group of patients can be treated with percutaneous intervention. This study was to review the safety and efficacy of rotablator and cutting balloon in our practice.

**METHODS** From January 2012 to December 2013, all consecutive patients who received rotational atherectomy for heavily calcified left main coronary disease in our cath lab were enrolled. All clinical and angiographic characteristics as well as information regarding rotational atherectomy and cutting balloon were retrieved and analyzed.

**RESULTS** A total number of 8 patients were recruited with a mean age 77.8 +/- 9. There were 75% presented with stable angina, 12.5% with acute coronary syndrome and 12.5% with cardiogenic shock. Chronic renal disease was seen in 25%, diabetes mellitus in 50% and hypertension in 100%. The angiographic and procedural success rate was 100%. The number of burrs used per patient was 1.3 +/- 0.4 and burr size was 1.75 +/- 0.25. The cutting balloon size was 2.34 +/- 0.7. Most stents were drug-eluting stent 87%. The techniques used for bifurcation stenting were cutout (62.5%), mini-crush (25%) and provisional (12.5%). Intra-aortic balloon pump was used in 25%. There was no complication among our cases.

**CONCLUSION** Heavily calcified left main coronary disease treated with rotational atherectomy, cutting balloon and stent is feasible and safe with high angiographic and procedural success rate.

### TCTAP A-038

**Acute Myocardial Infarction with Left Main Disease Combined with Chronic Renal Insufficiency and Cardiogenic Shock: A Double-Edge Sword**

*Harris Ngow,1 Seung-Woon Rha,2 Byoung Geol Choi,2 Se Yeon Choi,2 Shaopeng Xu,1 Jabar Ali,4 Ji Bak Kim,2 Cheol Ung Choi,2 Eung Ju Kim,2 Dong Joo Oh1*

1Hospital Tengku Ampuan Afzan, Malaysia; 2Korea University Guro Hospital, Korea (Republic of); 3Tianjin General Hospital, China; 4Korea University Guro Hospital, Pakistan

**BACKGROUND** The mortality of patients (pts) admitted with acute myocardial infarction (AMI) remains high despite improvement in all aspects of cardiac care. This mortality is even higher in pts who require index left main (LM) revascularization at the time of admission. We sought to investigate the predictors of in-hospital and 2-year mortality in such pts.

**METHODS** This study is single center, retrospective, observational and registry-based study. All pts admitted for AMI as defined in the “Third Universal Definition of Myocardial Infarction” and fulfilled the inclusion and exclusion criteria was enrolled. A total of 212 all pts were screened from our institutional LM stenting registry and we identified 75 pts among this cohort who successfully underwent emergency revascularization of the LM disease.

**RESULTS** A total of 75 AMI pts with significant LM disease were enrolled. Male was in 77.3%. There were 47 (62.7%) ST-segment elevation myocardial infarction (STEMI). Cardiogenic shock was present in 12.0% of the pts and significant number of pts required IABP insertion. Clinical and Angiographic success was achieved in 100% of the patients. Overall, the in-hospital mortality remained high at 17.3% due to overt heart failure, cardiogenic shock and multi-organ failure. 13 Major cardiovascular events (MACE) were recorded during hospitalization including death, myocardial infarction, and stent thrombosis and target vessel revascularization. From the multiple regression analysis, cardiogenic shock at presentation and the renal dysfunction remained grave with 77.8% of in-hospital mortality. At 2-year follow up, in-hospital survivor has a mortality of 11.3% whereas additional 22 experienced MACE.

**CONCLUSION** Pts with LM disease required stenting at the time of AMI is uncommon but is associated with high in-hospital and 2-years mortality especially in those presenting with cardiogenic shock and renal dysfunction.

### TCTAP A-039

**The New Possibility of the Glider Balloon As a Side Branch Treatment in the Coronary Bifurcation Lesion Beyond the Kissing Balloon Inflation**

*Masaaki Nishihara,1 Yoshinobu Murasato1*

1Kyushu Medical Center, Japan

**BACKGROUND** Final kissing balloon inflation (KBI) is generally accepted as a technique to expand the side branch (SB) and proximal main vessel (MV) simultaneously after cross-over stenting in the coronary bifurcation lesion. The prior bench testing, however, revealed that the KBI causes an asymmetric oval deformation of the proximal MV stent. The Glider balloon (GB) (Tri Reme Medical, Pleasanton, CA, U.S.A) is a dedicated SB balloon designed for optimal SB ostial expansion with minimizing the MV stent deformation. We investigated the efficacy of the GB in the present study.

**METHODS** We analyzed consecutive 19 patients who underwent elective bifurcation stenting with SB dilation using the GB and proximal optimization technique (POT) (mean age; 71 ± 2 year-old, man / female = 17 / 2). The lesion location was LMT / LAD / LCx / RCA = 9 / 7 / 1 / 2. The 2.5/ 4 mm and 3.0/ 4 mm GB balloons were used in 12 and 7 cases, respectively. We evaluated the eccentricity index (short / long lumen diameter) and cross sectional area (CSA) in the SB ostium, proximal and distal MV at the bifurcation and the reference sites using IVUS or OCT or OFDI.

**RESULTS** The eccentricity index at the bifurcation site was not statistically different from that at the reference site in each branch (distal MV; 0.90 ± 0.01 vs. 0.90 ± 0.01, SB; 0.86 ± 0.02 vs. 0.85 ± 0.02, proximal MV; 0.89 ± 0.01 vs. 0.91 ± 0.01, versus reference site). In addition, the CSA was not statistically different in each site compared with that of each reference site (distal MV; 7.77 ± 0.53 vs. 7.33 ± 0.51 mm2, SB; 6.67 ± 0.73 vs. 5.74 ± 0.52 mm2, proximal MV; 8.94 ± 0.47 vs. 9.79 ± 0.61 mm2, versus reference site). The mean percentage of lumen CSA gain of the proximal MV compared to the distal MV was 95±8 %, which was similar as that induced by the KBI in the previous report.

**CONCLUSION** These data indicate that the SB dilatation by the GB combined with POT could provide symmetrical and sufficient expansion in each branch without any significant deformation of the MV stent.

### TCTAP A-040

**Immediate & Intermediate Follow-up of Percutaneous Treatment of Bifurcation Lesion Using Drug Eluting Stent for Main Branch and Drug Eluting Balloon for the Side Branch in Bifurcational Coronary Artery Disease**

*Saad Mohamed Al Kasab,1 Menwar Mutared Al Anazi,1 Ali Suliman Al Masood,2 Mohamed Saad Al Kasab,1 Rida Mustafa Nourallah,1 Yahya Shelyan Al Hebaishi,1 Mohammed Ali Habbab,1 Abdullah Al Khushail1*

1Prince Sultan Cardiac Center, Saudi Arabia

**BACKGROUND** Percutaneous coronary interventions with standard balloon or bare metal stent for bifurcational lesion carry a significant restenosis rate of both vessels. The use of the drug eluting stent (DES)
for main branch in bifurcational coronary artery lesions or using DES main branch with regular balloon for the side branch did not show significant improvement at 6/12 follow up particularly for the side branch which still show significant rate of restenosis. In bifurcational lesion with significant stenosis of both branches, the restenosis of side branch is high with either provisional or two stent techniques (15%). Recent reports suggest that drug eluting balloon (DEB) might improve the current result of side branch treatment. We perform this study to evaluate outcome of the percutaneous coronary intervention (PCI) with DES for main branch & DEB for side branch with bifurcational coronary artery disease.

METHODS This study enrolled 80 patients with coronary artery bifurcation lesions, 50 were males & 30 were females with a mean age of 60±8 years. Thirty patients had hyperlipidemia and 48 had diabetes mellitus. The involved vessels included left anterior descending/diagonal (36), circumflex obtuse marginal (16) and right coronary artery/posterior descending/posteriolateral (8). All patients received DES for main branch PCI with paclitaxel DES for the side branch. 50 patients had stable angina and 30 had unstable angina or silent ischemia. Patients with left main bifurcational lesion and patient with severe left ventricular dysfunction (ejection fraction > 25%) were excluded. At 6 months follow-up, coronary angiography was performed in 40 patients, nuclear image in 28 patients and the remaining 12 were followed-up clinically. The mean size and length were 2.75 ± 0.3 and 18.0 ± 6.0 mm for the used DES and 2.22 ± 0.23 and 18.0 ± 8.0 mm for the used DEB.

RESULTS Procedure success was achieved in all patients. The Pre-PCI diameter stenoses for the main branch and for the side branch were 95 ± 12% and 53 ± 10%, respectively. They became 5 ± 7% and 15 ± 10% immediately after the procedure and 15 ± 6% and 30 ± 10% at 6–12 month follow-up. Dissection of the posterolateral branch with residual restenosis of 60% occurred in one patient during dilation with DEB, which was treated with DES with good result. No acute or sub-acute thrombosis was noticed in any of the studied patients. The incidences of restenosis and of major adverse cardiac events at follow-up were 5% and 6.25%, respectively. Restenosis occurred in 2 patients with circumflex obtuse marginal and in 2 patients with left anterior descending/diagonal dilation. 2 were treated with coronary artery bypass surgery and the other two were treated medically. No death was observed in any of the studied patients during the 12 month follow-up period.

CONCLUSION This study demonstrates that the technique of using DES for the main branch and DEB for the side branch for the treatment of bifurcational lesions is safe and effective with a low incidence of restenosis and major adverse cardiac events at immediate and six–twelve months follow-up.

TCTAP A-143
Clinical Outcome of Aorto-Ostial Coverage in Patients Following Implantation of Drug Eluting Stents in Unprotected Left Main Coronary Artery: 2-Year Results from the ASAN-MAIN Registry
Seung-Jung Park, Min Su Kim, Se Hun Kang, Hee-soon Park, Byeong Joo Bae, Sang Soo Cheon, Jae Hyung Roh, Pil Hyung Lee, Mineok Chang, Sung Han Yoon, Jung-Min Ahn, Seung-Jung Park
1Asan Medical Center, Korea (Republic of)

BACKGROUND The aim of this study was to compare the clinical outcome of unprotected left main coronary artery (ULMCA) aorto-ostial coverage (AOC) with DES.

METHODS A total of 3041 patients with significant ULMCA stenoses were enrolled in ASAN-MAIN registry. We identified 861 (28.3%) with ULMCA treatment with DES, who were categorized into stenting with AOC coverage (AOC, N=623) versus stenting without AOC (N=238).

RESULTS Angiographic follow up was obtained in 630 (73.1%) patient. No AOC group showed more chronic total occlusion (2.9% vs. 1.0%, p=0.033) and more ulcerative lesions (4.6% vs. 2.1%; p=0.043). In patients of the AOC group had more aorto-ostial lesion (49.3% vs. 21.1%; p=0.001). During 2-year follow-up, all–cause mortality, MI, TVR and TLR did not show statistically significant differences. LM ISR did not differ between groups (4.2% in No AOC group vs. 6.9% in AOC group; p=0.29). LM ostial ISR occurred 8 patients (1.2%) in AOC group and de novo LM ostial stenosis occurred 4 patients (1.6%) in No AOC group. After Cox regression multivariable analysis, AOC did not affect the cardiac death (HR 1.56, 95% CI 0.57 to 4.05; p=0.30).

CONCLUSION AOC of the ULMCA with DES is safe, which did not affect clinical outcomes or ISR.

CELL THERAPY AND ANGIOGENESIS (TCTAP A-041)
TCTAP A-041
Inhibiting Mobilization of Ly6C<sup>high</sup> Monocytes After Acute Myocardial Infarction Enhances the Efficacy of Mesenchymal Stromal Cells Transplantation and Curbed Myocardial Remodeling
Wenbin Lu, Fu Cong, Wang Xin, Genshan Ma
1Zhong Da Hospital, Southeast University, China

BACKGROUND Ischemia-related inflammation is the most critical factor for the survival of transplanted mesenchymal stem cells (MSCs). Strategies of keeping excessive inflammation in control after acute myocardial infarction (AMI) are necessary and essential for the survival of transplanted MSCs. Our study was to test whether decreased Ly<sub>6C<sup>high</sup></sub> monocytes benefited mouse MSCs transplantation post-AMI.

METHODS BALB/c AMI mice were systemically treated with CCR2 antagonist (R504393, 2mg/kg, Tocris) or normal saline (control group). BALB/c AMI mice were systemically treated with CCR2 antagonist (R504393, 2mg/kg, Tocris) or normal saline (control group). 105 EdU-labeled (Invitrogen) MSCs were administered to mice in both groups by intramyocardial injection. We used Tunel kits (R&D Systems) to identify the apoptotic cardiomyocytes in the infarct zone. And slides were stained with anti-human CCR2 antibody and anti-human EdU antibody. CCR2 antagonist (RS504393, 2mg/kg, Tocris) or normal saline (control group). 105 EdU-labeled (Invitrogen) MSCs were administered to mice in both groups by intramyocardial injection. We used Tunel kits (R&D Systems) to identify the apoptotic cardiomyocytes in the infarct zone. And slides were stained with anti-human CCR2 antibody and anti-human EdU antibody.