Pediatric

[OP-001]

Tanscatheter closure of patent ductus arteriosus in infants weighing less than 5kg

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Objective: To investigate immediate and follow-up treatment results of transcatheter closure of patent ductus arteriosus (PDA) in infants less than 5kg.

Methods: Between January 2005 and December 2009, 227 patients underwent transcatheter closure of PDA in Severance Cardiovascular Center. Among them 23 patients were less than 5kg. We retrospectively reviewed the clinical outcomes of these patients.

Results: Of the total 23 patients, 22 patients underwent successful transcatheter closure of PDA. The PFM Nit-Occlud (PFM AG, Cologne, Germany) was used in 5 cases, COOK Detachable Coil (COOK Medical Inc, Bloominton, IN, USA) was used in 1 case, and Amplatzer Duct Occluder (AGA Medical Corp., Plymouth, MN, USA) was used in 17 cases. Median body weight was 4.5kg (3.2-5kg) and median age was 3months (1-8months). The mean PDA size and the mean device size were 3.6±1.4mm and 4.6±1.3mm, respectively. The mean Qp/Qs ratio was 2.8±1.2. The mean procedure time and fluoroscopic running time were 52.8±28.1 minutes and 12.0±5.9 minutes. No major complications were observed in all the patients. No significant pulmonary artery nor aortic stenosis was observed after the procedure. No significant residual shunt flow remained in all patients at last follow-up.

Conclusions: Transcatheter closure of PDA in carefully selected infants less than 5kg is a safe and effective treatment.

Pediatric

[OP-002]

Single center experience of transcathetr completion of Fontan in Saudi Arabia

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Introduction: Fontan surgery and its modifications are well-recognized palliation for univentricular types of heart lesions.nowadays palliation can be achieved by combined surgical and transcatheter approaches, which offer good immediate and early results for the high-risk patient.

Method: Between September 2006 through July 2009, 12 patients underwent stage I (hemifontan) which is purely surgical, 9 of them underwent stage II transcatheter completion of Fontan using uncovered stent and ASD II device closure of the Fenestration, 3 of them (33.3%) has adjunctive closure of pulmonary forward flow using Amplatzer muscular VSD device closure.

Result: Mean age 6.8 year, mean weight is 20 kg, median hospital stay is 2 days, median follow up 2.5 year, no immediate or early complication, rhythm is sinus, no reintervention.

Conclusion: We conclude that Trans catheter completion of Fontan approach in selected patient is an alternative approach.

Valvular interventions and structural heart disease

[OP-003]

Transcatheter occlusion of antegrade additional pulmonary blood flow after bidirectional Glenn anastomosis using Cardiofix duct occluder

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Introduction: Percutaneous transcatheter closure of additional flow from the ventricle to the pulmonary artery (PA) resulting in elevated Glenn pressure using Cardiofix duct occluder will be presented.

Patient: Glenn anastomosis with tightening of PA band had been performed in a three years-old girl. Immediate after the operation mean PA pressure was 17 mmHg but recurrent/persistent pleural effusions and the development of superior vena cava syndrome were observed in subsequent days. At cardiac catheterization, the mean PA pressure was 27 mmHg, which is too high for Glenn circulation. We saw the PA pressure decreased to below twenties and oxygen saturation from 90 % to 80 % during balloon occlusion testing, and then we decided to occlude the flow from ventricle PA. We measured 5 mm PA diameter at the level of banding. We implanted 8 x 10 mm Cardio-Fix duct occluder by jugular venous approach and leaving the aortic disc at the ventricle side. The mean PA pressure decreased to 17 mmHg after complete occlusion of the antegrade pulmonary blood flow.

Conclusion: In patients with pulmonary hypertension and additional antegrade PA flow after Glenn anastomosis, transcatheter closure of accessory PA flow with Cardiofix duct occluder is a safe and cost-effective device. Balloon occlusion testing may be helpful in demonstration whether the pressure will decrease or not without too much decreasing oxygen saturation.

Adult congenital

[OP-004]

Percutaneous closure of ventricular septal defects in adults

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Objective: We aimed to present our experience about percutaneous VSD closure using amplatzer occluder device in adult patients group.

Study Design: Between 2008 and 2010, 8 adult patients underwent percutaneous closure of VSD. This study included the first five 8 patients (3 women, 5 men; mean age 29.5 years; range 18 to 65 years) with a perimembranous (n=4) or muscular (n=4) VSD. All patients were assessed by transthoracic echocardiography (TTE) and, when necessary, transesophageal (TEE) echocardiography, heart catheterization, and ventriculography. Percutaneous closure was performed under fluoroscopy and TTE guidance. Amplatzer Muscular VSD closure devise was used in 3 patients, Amplatzer Memnraneous Occluder device was used in 3 patients, ADOII was used in 1 patient and ASDdevice was used in 1 patient.

Results: The VSD diameters were between 7-12 mm by echocardiography. All the device were implanted by standart technique. Ventriculography obtained immediately after the procedure showed minimal passage from the interventricular septum in three patients.In two of the patients who have VSD near the patch shunt did not disappeared completely.Third degree AV block was seen in 2 patients. One of the patients has an acute STEMI and complicated with VSD, has died after 4 days of successful closure. 7 of the patients were discharged within one or two days after the procedure.

Conclusion: Percutaneous closure of VSDs is a good alternative to surgical repair in adult patients. It has high success rates and low morbidity.

Table 1

PATIENT	AGE	VSD TYPE	PREVIOUS CARD SURG	Qp/Qs	PULM ART PRESS(mmHg)	DEVICE TYPE	DEFECT SIZE(mm)	RESIDUL A SHUNT	FLLOW UP DATA AND DURATION
YÇ	32	MUSCULAR	+	3.2	60	MUSCULAR VSDOCCLUDER	8	NO	ALIVE, 24 MONTHS
HG	65	POT MI MUSCULAR	–	2	75	ASD	12	YES	DEATH, AFTER 4 DAYS
HKB	22	MUSCULAR	_	2.3	60	MUSCULAR VSD OCCLUDER	10	NO	ALIVE, 15 MONTHS
MS	28	POST OPR MEMBRANEOUS	+	2.5	55	ADO II	10	YES	ALIVE, 8 MONTHS
HK	24	MEMBRANEOUS	_	2	60	MEMBRANEOUS VSD OCCLUDER	10	NO	ALIVE, 3 MONTHS
AL	18	MEMBRANEOUS	_	2.4	45	MEMBRANOEUS VSD OCCLUDER	8	NO	ALIVE 1 MONTHS
HO	26	MUSCULAR	_	2.1	50	MUSCULAR VSD OCCLUDER	7	NO	ALIVE 1 MONTH
FK	21	MEMBRANEOUS VSD	+	2.7	70	MEMBRANEOUS VSD OCCLUDER	10	YES	ALIVE 2 MONTHS

Table shows the patient characteristics

[OP-005]

Simultaneous two stents (genesis xd) implantations in the treatment of bilateral bifurcation stenosis by kissing method: report of two cases

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Objective: Simultaneous stent placement to treat bilateral bifurcating pulmonary artery (PA) stenosis is a challenging procedure. We present two cases.

Case 1: 11 years old girl postoperative TOF have 42 mmHg pressure gradients between main pulmonary artery (MPA) and both right (RPA) and left pulmonary artery(LPA). RPA narrowest diameter was 6 mm, adjacent normal vessel diameter was 10.3 mm. LPA was 6 mm in the narrowest site; adjacent normal vessel was 10.7 mm. A hand-mounted 29 mm Genesis XD stent on 11mm Z-Med balloon for LPA, 39 mm hand- mounted Genesis XD stent on 12 mm Z-Med balloon for LPA were used. Both stent deployed simultaneously. At the end of the procedure 5 mmHg gradient left between MPA and LPA, no pressure gradient between main and right PA.

Case 2: 24 months old postoperative TOF. Pressure gradient between MPA and LPA was 30 mmHg, MPA and RPA was 30 mmHg. Narrowest site was 5.8 mm, adjacent vessel was 10 mm in RPA, narrowest site was 6 mm and adjacent normal vessel was 12 mm in LPA. 29 mm Genesis XD hand-mounted stent on 12mm Z-Med balloon in LPA origin and 19 mm hand- mounted on10 mm balloon placed RPA origin were deployed at the same time. Following the procedure, 10 mmHg pressure gradient left between RPA and main PA.

Conclusion: Our experience with these two cases demonstrated that simultaneous transcatheter placement of bifurcating PA stents results in immediate gradient relief and reduces right ventricular systolic pressure.

[OP-006]

A new device (Cardi-O-Fix Duct Occluder) for percutaneous closure of patent ductus arteriosus: early and midterm results

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Objective: Percutaneous closure is an established standard method of treatment for most patients with patent ductus arteriosus except very small preterm babies. After Amplatzer duct occluder has been developed, it has become possible that transcatheter closure of large-sized PDAs. Cardi-O-Fix duct occluder (CFX-DO) is a new device with similar properties with Amplatzer duct occluder.

Method: We prefer duct occluder in patients having PDA diameter greater than 3.5 mm regarding cost affectivity. So our experience limited to larger ones.

Results: Since 2003, 490 patients underwent cardiac catheterization for PDA closure. CFX-DO were used in 91 of them. 19 of these 91 had congestive heart failure and were on anticongestive treatment. 29 had pulmonary hypertension (mean PA pressure >25 mmHg). The mean age of CFX-DO used patients 12.8 ± 1.5 (4 month-63 year) and the median weight was 32 ±2.3 kg. Mean PDA diameter was 6.6 ± 3.0 mm. (3.5-10 mm, median 5,4 mm). Cardi-O-Fix duct occluder implantation procedure was successful in all patients. Complete occlusion in catheter laboratory accomplished in 76 of them (76/91, % 83.5). At one month full occlusion was achieved in 89 of 91 (%97.8) patients. One device embolized pulmonary artery and in another case with long tubular PDA with pulmonary hypertension duct occluder partially displaced to descendant aorta and caused aortic coarctation. The device was caught and repositioned by bioptom catheter; PDA closed properly and coarctation disappeared.

Conclusion: Closure of moderate to large PDA's by Cardi-O-Fix duct occluder is safe and effective.

[OP-007]

A new device (Cardi-O-Fix Occluder) for ASD closure: Early and mid-term results

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Aim: We sought to analyze the safety, efficacy and follow-up results of percutaneous closure of atrial septal defects using the new Cardi-O-Fix septal occluder, a similar but less cost device to the Amplatzer septal occluder.

Methods-Results: Between July 2004 and June 2010, 270 patients diagnosed with secundum atrial septal defects underwent transcatheter closure. The Amplatzer septal occluder device was implanted in 133 patients, while the Cardi-O-Fix septal occluder was implanted in 120 patients. Cardia septal occluder was used in 10 cases (3.7%), and in the remaining 7 cases (2.6%) a Figulla septal occluder was used. The Cardi-O-Fix septal occluder was implanted successfully in all 120 patients. 76 patients were female and 44 were male. The average age of patients was 12.6±11.2 (2-56) years. The average defect diameter measured by transthoracic echocardiography was 14±3.4 (8-24) mm, the average defect diameter measured by balloon sizing was 18.7±4.5 (10-30) mm. The average Qp/Qs was 1.8±0.3 (1.5-3.2). The average device size was 18.4±4.4 mm (diameters ranging from 10 to 30 mm). 16 patients had complex defects. The procedure was performed under transthoracic echocardiographic guidance in 74 % of cases, and in the remaining 26% transesophageal echocardiography was used. Device implantations were performed successfully in all cases. No significant complication except device migration in one and transient complete heart block in another were observed.

Conclusion: In accordance with the short-term and mid-term follow-up results, percutaneous closure of the atrial septal defect with the Cardi-O-Fix septal occluder is safe and cost-effective.

[OP-008]

Immediate release patch occlusion of atrial structures in piglets using non allergenic absorbable latex balloons

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Purpose: The immediate release patch (IRP) made by a polyurethane patch and a latex balloon has been found effective and safe in heart defect occlusion. Concern has been raised in its use in type 1 latex allergy sufferers. Guayule tree latex (GUL) is a natural alternative to latex with the same properties in vitro and negative protein assay for Latex antibodies The efficacy and safety of GUL IRP was studied in the occlusion of atrial structures in 12 piglets.

Methods: A variety of atrial stuctures including six atrial septal defects (ASDs), four patent foramen ovale (PFO) and two left atrial appendages (LAAs) were occluded by NR IRPs. The ASDs were created by static balloon angioplasty of the PFO using balloons 7-10mm in diameter. The balloon/patch was inflated to 10-12 mm for all applications. The patch was immediatelly detached in all cases and the animals were followed from 1day to 7 months and had autopsies.

Results: All atrial structures were fully occluded. The patch became attached in 48 hours and was endothelialized within 2 weeks. The balloon was flat within 2 months. There was evidence of progressive absorption of the device. There were no serious complications.

Conclusions: The GUL IRP shows similar properties to natural latex IRP but is unable to cause latex allergies. It has the potential to be used as the alternative to natural latex in frameless bioabsorbable devices for the occlusion of atrial structures, in allergic to latex patients and It could also replace Latex in many Medical applications.

[OP-009]

Impact of pain to balloon time and angiographic morphologic features on development of no-reflow phenomenon in patients treated with primary angioplasty

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Aim: We aimed to investigate the effect of pain to balloon time and angiographic morphologic features on development of no-reflow phenomenon in patients who underwent primary percutaneous coronary intervention (PCI).

Study design: The study population was formed from 1617 patients with acute myocardial infarction, who admitted within 12 hours of the initiation of chest pain and underwent PCI. After intervention, the patients were grouped into no-reflow and reflow according to final TIMI flow grade.

Results: No-reflow (TIMI<=2) was observed in 193 (11.9%) patients. In logistic regression analysis, age (odds ratio [OR] 1.02, 95% confidence interval [CI] 1.00-1.04, p=0.003), pain to balloon time (for <2 hour, OR 1.00; for 2-4 hour OR 1.72; 95% CI 1.06-2.80, p=0.026; for 4-6 hour OR 3.98, 95% CI 2.50-6.32, p<0.001; for >6 hour OR 8.40, 95% CI 4.52-15.62, p<0.001), baseline TIMI <=1 flow (OR 2.55, 95% CI 1.05-6.22, p=0.038), lesion length >=15mm (OR 4.31, 95% CI 2.89-6.41, p<0.001), reference vessel diameter >=3.5 mm (OR 2.83, 95% CI 1.87-4.27, p<0.001), TIMI thrombus score >=4 (OR 1.93, 95% CI 1.03-3.62, p=0.04) and repeated balloon dilatations (OR 1.40, 95% CI 1.40-3.07, p<0.001) were identified as significant predictors for development of no-reflow phenomenon.

Conclusion: The risk of no-reflow development increases significantly in accordance to the increased reperfusion time. Also morphological properties such as lesion length and vessel diameter are significant predictors of no-reflow phenomenon and they might be of use in the selection of patients who may benefit from the use of thrombus aspiration.

Acute coronary syndromes, myocardial infarction, thrombectomy and vulnerable plaque

[OP-010]

Comparison of the results of direct stenting versus conventional stenting according to baseline TIMI flow in patients with acute myocardial infarction: Is direct stenting better?

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Aim: We compared the in-hospital outcomes of direct stenting (DS) and conventional stenting (CS) according to preprocedural TIMI flow grades.

Study design: The study population was formed from 1533 patients with acute myocardial infarction treated with primary percutaneous coronary intervention (PCI). Firstly, all the study population was compared according to treatment modality (DS [n=300] or CS [n=1233]. Then the DS group was matched with CS group according to presence of preprocedural TIMI >=1 flow (TIMI >=1 flow before balloon dilatation, DS group [n=300], CS group [n=408])

Results: In total study population, no-reflow (postprocedural TIMI<=2 flow or myocardial blush grade <=2 despite TIMI 3 flow) was lower in the DS group (14.3%vs 29.8%, p<0.001), while no difference was observed in the matched population (14.3% vs 15.9%, p=0.55). Post procedural complete ST segment resolution (>70%) was significantly higher in the DS group of total population (70.1% vs 58.6%, p<0.001), while no difference was observed between DS and CS groups in the matched population (p>0.05). Similarly in hospital mortality and heart failure was significantly lower in the DS group of total population (1.3% vs 4.8%, p=0.005 and 5.3% vs 11.4%, p=0.002, consecutively) however no difference was observed in the DS and CS groups of the matched population (1.3% vs 1.2%, p=1 and 5.3% vs 3.9%, p=0.37, consecutively).

Conclusion: There is no difference between DS and CS with respect to myocardial perfusion and in-hospital adverse cardiovascular end-points when the population is matched according to preprocedural TIMI flow

Acute coronary syndromes, myocardial infarction, thrombectomy and vulnerable plaque

[OP-011]

Gender-related differences in clinical outcome in ST-Elevation Myocardial Infarction Reperfusion Treatment Network- STEMI BRIANZA- prospective observational registry of acute myocardial infarction treatment in a developing local network

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Early reperfusive treatment for STEMI is widely recommended. Women are less likely to receive reperfusion therapy in STEMI, even though the distribution of diagnosis is similar between the genders and revascularization appears equally safe.

The STEMI-Brianza was a registry of consecutive patients presenting with STEMI within 24 hours from the symptoms' onset. Women constituted 26.3% of the 537 population, were older (71.5±11.8 vs. 61.8±12.2,p<0.0001) but less overweight (BMI 24.9±4.1 vs. 25.6±3.7,p<0.0001), more affected from hypertension (68.1% vs. 49.5%, p<0.0001) but smoked less than men (24.8% vs. 45.7%, p<0.0001). Females more frequently presented the high risk characteristics (66.7% vs. 44.4%,p<0.0001). No differences were observed between the genders in the type of reperfusion nor in the reperfusion times (median door-to-needle: women 29.5 vs. 25.5, p=0.377; median door-to-balloon: women 98.0 vs. 83.0, p= 0.089). Normal coronary arteries were found more frequently in women (5.0% vs. 1.8%,p=0.047). More than a half of women subgroup called the ambulance for assistance (55.3% vs. 36.5%,p<0.0001) while men presented autonomously in the Emergency Room (45.2% vs. 25.5%, p<0.0001). No sex differences were observed in in-hospital (4.3% vs. 2.0% men, p=0.214) and one-year (7.4% vs. 6.7% men,p=0.844) mortality rates. The excess of in-hospital major bleeding observed in women (2.1% vs. 0.3%, p=0.047), was not confirmed in multivariate analysis.

The study confirms the particularity of the female population in STEMI onset. Women benefit equally to men from the reperfusion, showing no differences in mortality. Females seem to be more susceptible to major bleeding complications, independently on the treatment modality.

Acute coronary syndromes, myocardial infarction, thrombectomy and vulnerable plaque

[OP-012]

Outcome of Primary Percutaneous Coronary Intervention (PCI) of ostial versus nonostial occlusion of left anterior descending artery

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Primary percutaneous coronary intervention (PCI) is established and preferred mode of treatment after ST-elevation myocardial infarction, outcome of primary PCI of acute ostial left anterior descending (LAD) artery occlusion are not known.

Study conducted at a tertiary care teaching Hospital from January 1st to December 31st, 2008. 70 patients were enrolled who underwent Primary PCI of LAD artery. Patients included in the study those in whom baseline coronary angiogram showed acute occlusion of left anterior descending artery. After angioplasty, patients were planned to follow at one month, 3 month and 6 month. Primary end point was to document the outcome of primary PCI of ostial LAD occlusion. Secondary endpoint was to compare the outcome of primary PCI of ostial vs non ostial LAD occlusion.

Out of 70 patients 50 had nonostial and 20 had ostial occlusion. Stenting was done in 95 % of all patients and was similar in both groups. Procedural success was the same for ostial and nonostial Primary PCI (100 % vs 96 %). Six months event free survival was also similar in both groups (75 % vs 76 %). Total event rate and mortality was also same in both groups (25 % vs 24 % and 10 % vs 10 %)

Primary PCI of ostial LAD occlusion is as safe and similar as non ostial LAD occlusion and optimal results can be achieved in this high risk group of patients in a developing country at a tertiary care hospital. Further studies with larger cohort are needed.

[OP-013]

Baseline B-type natriuretic peptide level and neutrophil-lymphocyte ratio predicts infarct related artery patency in acute myocardial infarction patients treated with primary angioplasty

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Aim: In this study we investigated the predictors of initial infarct related artery (IRA) patency, in patients with ST segment elevation myocardial infarction, treated with percutaneous coronary intervention (PCI).

Study design: The study population was formed from 1625 acute myocardial infarction patients treated with primary PCI. The patients were choosen for patent IRA and occluded IRA groups according to the presence of baseline TIMI 3 flow.

Results: Patent IRA was present in 160 (9.8%) patients. The blood samples on admission has shown that white blood cell count (WBC, x103 /μl) (11.10 ± 2.85 vs 12.45 ± 3.91, p=0.001), neutrophil count (7.79 ± 2.39 vs 9.72 ± 3.76, p<0.001), B-type natriuretic peptide (BNP, pg/ml) (53.6 ± 50.9 vs 130.7 ± 153.1, p<0.001) and C-reactive protein (mg/l) (10.09 ± 7.68 vs 14.09 ± 13.44, p=0.001) levels were significantly lower and lymphocyte count (2.35 ± 1.00 vs 1.89 ± 1.06, p<0.001) was significantly higher in the patent IRA group. In the patent IRA group, neutrophil/lymphocyte (N/L) ratio was significantly lower (4.08 ± 3.18 vs 6.89 ± 5.52, p<0.001). On multivariate logistic regression analysis, basal BNP >= 60 pg/ml (Odds ratio [OR] 3.20, 95% Confidence Interval [CI] 1.59 – 6.44, p=0.001) and N/L ratio >= 4.5 (OR 2.83, 95% CI 1.45- 5.51, p=0.002) were identified as independent predictors of initial IRA occlusion.

Conclusion: Basaline BNP level and N/L ratio are strong independent predictors of preprocedural IRA patency. These parameters might be of value to determine preprocedural treatment strategies and risk classification

Acute coronary syndromes, myocardial infarction, thrombectomy and vulnerable plaque

[OP-014]

Changes in left ventricular volumes after late revascularization of an occluded infarct related artery

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Objective: The target of research is to compare the changes in left ventricular volumes in patients with at least 3 month infarction, after recanalization of an occluded infarct related artery.

Methods: The main group was consisted of 30 patients, who underwent elective stenting of LAD. The control group was consisted of 30 patients after anterior myocardial infarction without further stenting of infarct related artery. LV volumes were measured by two-dimensional echocardiography within 72 hours of admission and repeated at 1,3,6 and 12 month.

Results: There were no significant differences in structural and geometrical values of left ventricle in both groups at the beginning of investigation.

The echo values in patients with traditional approach with stenting of infarct-dependent artery after one year of investigation start showed the reducing trend in ESV and EDV up to 9,6% and 11,9% in comparison with patients without further revascularisation (p<0,001). The mean value of LVEF is observed to have improv¬ing trend 6,7% in patients without stenting of LAD(p>0,05). The mean values of LVEF by the end of year have significantly increased (13,3%) in revascularisation group with the initial values and have the statistic trend to increase in comparison with the medical group (p<0,001).

It was found that the late revascularisation of infarct-dependent artery with standard therapy in patients after myocardial infarction has better impact on left ventricular volumes and systolic function, than traditional medical therapy without further reperfusion. The stenting of infarct-dependent artery facilitates earlier improvement of the systolic function of the left ventricle.

Acute coronary syndromes, myocardial infarction, thrombectomy and vulnerable plaque

[OP-015]

The association between the admission plasma BNP levels and coronary collateral development in patients with acute coronary syndrome

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Aim: Plasma brain natriuretic peptide (BNP) is secreted due to cardiac wall stress. Several studies showed that BNP levels increase both during the course of acute coronary syndrome and heart failure. Collateralization leads to increased oxygen delivery to the myocardium at risk and hence prevents infarction or heart failure and preserve contractile function. In this study we evaluated the association between the admission plasma BNP levels and coronary collateral development in patients with acute coronary syndrome (ACS).

Methods: We included a total of 128 patients with ACS (age 59±8.7 years). On admission venous blood samples were obtained for measuring BNP. Evaluation of coronary collateral vessel development was performed according to Rentrop classification system. Collateral grading was classified as poor when the Rentrop score was 0 to 1 and good when it was 2 to 3.

Results: The mean admission BNP was significantly higher in patients with poor coronary collateral development (328±72.7 vs. 219±56.7 pg/dl, p<0.001). There was a reverse correlation between admission plasma BNP levels and Rentrop score (r=-0.56, p<0.05). In multivariate analysis, among clinical and angiographic parameters, preinfarct angina pectoris (odds ratio 2, 75% confidence interval 1.5 to 5.07, p = 0.02), diabetes mellitus (odds ratio 4, 32% confidence interval 3 to 8.1, p = 0.001) and admission plasma BNP levels were found (odds ratio 2.84, 95% confidence interval 1.02 to 7.38, p = 0.005) were found to be independent predictors of good collateral development.

Conclusion: Admission BNP levels are correlated with Rentrop score in patients with acute STEMI.

Acute coronary syndromes, myocardial infarction, thrombectomy and vulnerable plaque

[OP-016]

Primary coronary intervention for ST elevation myocardial infarction in a starting heart center in indonesia: the first 100 patients

Yahya Berkahanto Juwana[1], Jan Paul Ottervanger[2], Jan Henk Dambrink[2], Arnoud Van't Hof[2], Menko Jan De Boer[2], Jan Hoorntje[2], Harry Suryapranata[2]

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Background: The benefits of Primary percutaneous coronary intervention (PCI) for ST elevation myocardial infarction (STEMI) have been demonstrated, but most studies were conducted in experienced centres in western world. Experience, logistics and patient characteristics may differ in other parts of the world, particularly in a starting center.

Methods: Data on all consecutive STEMI patients treated with primary PCI in Cinere hospital, Jakarta, Indonesia were collected in a prospective database.

Results: Between July 2006 and December 2008, a total of 100 patients with STEMI were treated by primary PCI. Mean age was 56.9 ± 10.4 years (range 37-82), 88% was male. Mean time between onset of chest pain and admission was 369 ± 388 minutes. The mean time between admission and balloon inflation was 258 minutes. Before PCI, 50% of patients had TIMI 0 flow. After primary PCI 94% of patients had TIMI 2/3 flow. There were no deaths in the catheterisation room, and no emergency coronary bypass surgery was needed as a result of PCI complications. Mean left ventricular ejection fraction as measured by echocardiography after 1 day was 48 ± 12 %.

Conclusions: Outcome after primary PCI at a starting center is excellent in this series. Primary PCI was effective in restoration of TIMI flow, without complications. Time delay between symptom onset, admission and balloon inflation was long and all efforts should be encouraged to shorten this.

[OP-017]

Angiographic predictors and clinical significance of distal embolization in patients with acute myocardial infarction treated with mechanical reperfusion

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Aim: We aimed to investigate angiographic predictors of distal embolization (DE) and in-hospital clinical significance, in patients treated with primary percutaneous coronary intervention (PCI).

Study design: The study population was formed from 1625 acute myocardial infarction patients treated with primary PCI. The patients were grouped according to the presence of angiographic DE.

Results: DE was observed in 97 (6.0%) patients. In univariate analysis, age, right coronary artery (RCA) infarctus, proximal lesion location, thrombus score >=4, lesion length, cut-off occlusion patern, reference vessel diameter and maximal balloon inflation pressure were higher in the DE group. Multivariate logistic regression analysis identified age (Odds Ratio [OR] 2.08, 95% Confidence Interval [CI] 1.25 - 3.44, p=0.004), RCA (OR 2.68, 95% CI 1.25 – 5.71, p=0.01), lesion length>15 mm (OR 1.82, %95 CI 1.10 – 3.00, p=0.018), cut-off occlusion patern (OR 2.52, 95% CI 1.75 – 5.05, p<0.001) and reference vessel diameter >3.5 mm (OR 6.06, 95% CI 3.70 – 10.00, p<0.001) as the independent predictors of DE. In the DE group final TIMI 3 flow (63.9% vs 89.7%, p<0.001) and myocardial blush grade 3 (16.7% vs 43.7%, p<0.001) were lower and in-hospital cardiac mortality was higher (9.3% vs 3.5%, p=0.004). Non-cardiac mortality and re-infarction rates were similar (p>0.05) between two groups.

Conclusion: Angiographic DE is related with worse postprocedural myocardial flow and increased in-hospital cardiac mortality in patients treated with primary PCI. The parameters predicting DE might be of use in the choice of patients who may benefit from the use of thrombus aspiration.

[OP-018]

Tirofiban high bolus dose vs Abciximab in Acute STEMI patients –undergoing Primary PCI TAMIP study

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King Abdulaziz Cardiac Center,King Abdulaziz Medical City

Background: Primary PCI is effective in acute MI, GP IIb/IIIa Inhibitors reduce thrombotic complications during PCI, few studies focused on High dose Aggrrastat for STEMI

Objectives: To study the effect of upfront HBD of Tirofiban on residual ST –segment deviation 1 hour after Primary PCI, and TIMI 3 flow of the Infarct related vessel (IRV)
Methodes:A randomized, observational study in Emergency May 2006-Oct 2007, 90 patients with STEMI, ECG criteria (ST- elevation of > 2mm in 2 leads, Age 21-85, given Heparin, ASA, Plavix, divided in two groups (Triofiban HB group 1 vs Reopro group 2), 45 each, Triofiban HB started in ER 25 mcg /kg over 3 minutes and patient transfered for PCI, Reopro dose was given in cath lab as a bolus of 0.25 mcg/kg and 0.125 mcg/kg/min over 12 hrs.

Results: ST-Segment resolution and TIMI flow was evaluated in both groups before and after PCI, 35 patients (78%) in group 1 vs, 29 patients (64%) in group 2 achieved ST-segment resolution (p-value 0.24), 21 patients (47%) vs 23 patients (51%) p-value 0.83 had Timi 0, 24 patients (53%) vs 22 patients (49%) p-value 0.83 had Timi 1-3 before PCI, and 40 patients (89%) vs 38 patients (84%) p-value 0.76 achieved Timi 3 flow post PCI respectively.

Conclusion: This study concluded a trend for better ST-segment resolution and more imorvement in TIMI flow and patency of IRV in Aggrastat group

[OP-019]

Use of intracardiac echocardiography in the cardiac catheterization laboratory – Largest report of single operator experience

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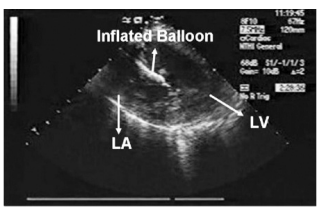
University of Alabama at Birmingham

Intracardiac echocardiography (ICE) has emerged as a very usefull and successful tool in the percutaneous non-coronary interventional procedures both in children and adults. We report a single operator experiences in using ICE for various noncoronary interventions.

Meterial / Methods-Results: Between November 2003 to September 2008 a total of 379-consecutive adult patients underwent several non coronary interventions under the guidance of ICE. Of these 290 had percutaneous closure of atrial septal defect (ASD) / (PFO). 57 patients underwent percutaneous mitral balloon valvuloplasty (PBMV) with ICE guidance. The rest 32 patients had temporary placement of Tandem Heart for hemodynamic support or had a high risk coronary intervention with support of Tandem Heart device. The ICE catheter was introduced through an 11Fr, 10-cm hemostatic valve sheath in the right common femoral vein.

Conclusions: ICE is a very valuable tool in the Interventional Cardiac catheterization laboratory which could be used for PBMV in high risk MS patients, for adequate analysis of device deployment in ASD/PFO and also for appropriate localization of atrial septostomy for placement of Tandem Heart device.

Ballon across the MV



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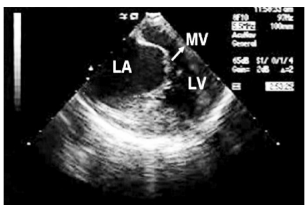

[OP-020]

Subgroup analysis of hemodynamic and clinical response to percutaneous mitral annuloplasty for functional mitral regurgitation in the TITAN™ Trial

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Background: The TITAN™ trial evaluated the safety and efficacy of percutaneous mitral annuloplasty with the CARILLON® XE2 to treat functional mitral regurgitation (FMR). Key subgroup analyses (e.g., FMR grade, etiology of FMR, and rhythm) allow for improved understanding of the clinical impact of this therapy.

Method: Inclusion criteria: Dilated ischemic or non-ischemic cardiomyopathy, moderate to severe FMR, LVEF<40%, NYHA Class II-IV, and 6 minute walk distance (6MWD) 150-450 meters. Permanent implantation occurred in patients with a peri-procedural reduction in FMR (n=36). The primary safety endpoint was the MAE rate at 1 month. Secondary endpoints at 12 months included echo core lab derived quantitative measures of FMR including regurgitant volume, 6MWD, and QOL measured by the Kansas City Cardiomyopathy Questionnaire (KCCQ).

Results: At baseline, 94% of patients were NYHA III, EF was 28.4%, and LVEDD was 70mm. The MAE rate at 30-days for all 53 attempted patients was 1.9%. For the overall implanted cohort, regurgitant volume was reduced 16.8 ±21ml, six minute walk increased 124.5±202 m, and KCCQ increased 21.9±16 points between baseline and 6 months. Table 1 breaks down these results into specific subgroups.

Conclusion: Percutaneous treatment of FMR with the CARILLON® Mitral Contour System™ was associated with reduction in FMR and clinical improvement in all patient subgroups in the

Change in hemodynamic and clinical parameters between baseline and 6 months

		Regurg Vol (ml)	6 min walk distance (m)	KCCQ
Baseline FMR Grade	2+ (n=11)	-28.5 ±13	155.3 ±249	19.8 ±18
	3-4+ (n=25)	-13 ±23	110.1 ±183	25.7 ±20
Etiology	Ischemic (n=23)	-21.3 ±24	71.1 ±135	19.5 ±21
	Non-ischemic (n=13)	-11.4 ±18	192.5 ±256	29.5 ±15
Rhythm	Sinus (n=24)	-18.5 ±22	143.9 ±203	23.5 ±17
	AFib (n=12)	-10.3 ±19	63 ±204	21.2 ±17

TITAN trial. Patients in sinus rhythm with a non-ischemic etiology to their FMR improved most.

[OP-021]

Safety and efficacy comparison between implanted and non-implanted patients in the TITAN trial using percutaneous mitral annuloplasty to treat functional mitral regurgitation

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Background: Percutaneous techniques are being developed to treat functional mitral regurgitation (FMR). The TITAN™ trial evaluated the safety of the coronary sinus based CARILLON® XE2 device and compared functional measures between implanted and non-implanted patients.

Methods: Heart failure patients with moderate to severe FMR, LVEF<40%, and 6 minute walk distance (6MWD) 150-450 meters were enrolled in the trial. Peri-procedural reduction in FMR and confirmation of unaltered coronary flow were prerequisites to permanent implantation (n=36). Non-implanted patients (e.g., device recaptured) served as a non-randomized, non-blinded control (n=17). The primary safety endpoint was the MAEs rate at 1 month. Secondary endpoints at 1, 6, and 12 months included echo core lab derived quantification of FMR and LV Dimensions, NYHA Class, 6MWD, and QOL measured by the Kansas City Cardiomyopathy Questionnaire (KCCQ).

Results: At baseline, 94% of patients were NYHA III, EF was 28.4%, and LVEDD was 70mm. The MAE rate at 30-days for all 53 attempted patients was 1.9%. Reductions in 4 quantitative FMR measures ranged from 32-43% at 6 months for implanted patients. LVESV was reduced from 164±64 (baseline) to 142±52 (6 months) (p<0.01).

Final 12 month TITAN results will be presented.

Conclusion: Percutaneous treatment of FMR with the CARILLON® Mitral Contour System™ was associated with reduction in FMR in the TITAN trial, and a significantly greater improvement in functional parameters.

Functional Changes (mean±SD, P value by ANOVA)

	6 MWD		NYHA		KCCQ	
	Baseline	6 mo	Baseline	6 mo	Baseline	6 mo
Implanted	302±74	436±208	3.1±0.2	2.1±0.7	43±18	64 ±23
	P=0.0036		P<0.0001		P=0.00012	
Control	338±83	322±105	2.9±0.2	2.7±0.7	40±19	50±22
	P=0.915		P=0.135		P=0.655	

[OP-022]

Interesting balloon hardware related complications in percutaneous balloon mitral valvuloplasty

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Percutaneous Balloon Mitral Valvuloplasty (PBMV) is a well established safe therapy for symptomatic severe pliable mitral stenosis. Hardware related complications are rare and literature search reveal only few reports. We report 2 balloon related complications during PMBV.

A 26 year old male with favourable mitral valve morphology was taken for PBMV. On successful transeptal cross over under flouroscopy the Accura balloon was positioned across the mitral valve and dilated. The balloon was pulled back into the left atrium. Although the distal part of the balloon deflated, the proximal part failed to deflate. As there is a manufacture provision for spontaneous gradual deflation of balloon, it was kept in the left atrium and observed under fluoroscopy. The balloon did deflate enough for it to be pulled across septum into right atrium and inferior vena cava to the femoral vein. Under fluoroscopy a separate groin puncture was made with a 18 gauge needle near the sheath, and the balloon was punctured and deflated with negative suction into a 50cc syringe. The balloon was then withdrawn into the sheath and taken out (Figure 1).

In the second case a 28 year old male with severe pliable mitral valve was taken up for PBMV. On

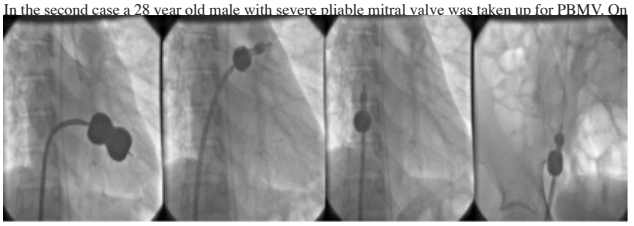

Figure 1. Failure of Accura balloon to deflate.

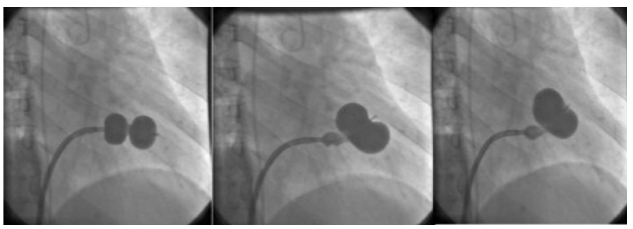

Figure 2. Rupture of balloon.

[OP-023]

Acute results of percutaneous mitral balloon valvuloplasty: A single center study

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Objective: Percutaneous mitral balloon valvuloplasty (PMBV) is the method of choice in treatment of patients with hemodynamically significant mitral stenosis.We aimed to analyze acute and long term clinical and echocardiographic consequences of PMBV.

Methods: Five hundred and seventy-seven patients who underwent PMBV in our clinic between January 2000 and March 2009 were evaluated for acute procedural outcomes and primary endpoints (death, rePMBV, mitral valve replacement).

Results: In the analysis of 577 patients undergoing PMBV in an experienced center, acute postprocedural success was 94.8% and was only correlated with preprocedural mitral valve area (MVA) and the grade of tricuspid regurgitation (p=0.0001, p=0.031 respectively). 30 inadequate immediate results were related to suboptimal valve opening (MVA < 1.5 cm2) in 20 cases (3.46%) and severe MR (grade>=3) in 10 cases (1.7%). Preprocedural clinical, echocardiographic and hemodynamic characteristics of two groups are shown in Table 1.

In the 577 procedures, 20 variables were evaluated by univariate analysis as predictors of PMBV success. Complete information was available in all procedures. (Table 2) Only preprocedural MVA was statistically significant predictor of acute procedural success in the univariate and multivariate analysis (p <0.001, HR:3.5).

There were no deaths, pericardial tamponade and cerebrovascular accident (CVA) in postprocedural hospitalisation period. Postprocedural severe MR (grade>= 3) was detected in 10 patients. Four of 10 underwent operation at long term follow up.

☞

Conclusions: Concerning long term follow up data of patients undergoing PMBV in a single center, it seems only acute postprocedural MVA was significantly associated with long term consequences.

[OP-024]

A reliable method to avoid coronary artery compression during Melody valve implantation: experience of the U.S. clinical study

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Background: The Medtronic Melody Transcatheter Pulmonary Valve is a percutaneous valve for restoring function of right ventricular outflow (RVOT) conduits. Coronary artery compression is a life-threatening complication of stent enlargement of RVOT conduits when a vulnerable coronary artery is compressed by further expansion of the conduit.

Methods-Results: The U.S. Feasibility Study of the Melody valve study protocol requires a careful evaluation of the coronary arteries and the potential for compression by an RVOT conduit stent. Further functional assessment of the potential for compression is performed by temporary balloon dilation of the conduit with simultaneous aortic root or selective coronary angiography. When coronary compression is confirmed or suspected Melody valve implantation is not performed. 6/124 (5%) patients catheterized were not implanted due to risk of coronary compression. No patient who received a valve developed evidence of coronary compression.

Conclusion: Coronary artery compression during stenting of RVOT conduits is a serious, life threatening complication. The risk in this patient population is significant (5%). The risk of potential coronary can be mitigated with a reliable method including appropriate non-compliant balloon sizing with concomitant angiography of the coronary arteries.

☞

[OP-023] continued

Tablo 1 Preprocedural clinical, echocardiographic and hemodynamic characteristics

Characteristics	Succesfull PBMV (n=547)	Unsuccesfull PBMV (n=30)	p value
Age (years)	37±10	36±11	0.491
Sex (F/M) (%)	79/21	73.3/26.7	0.745
Height (cm)	159±11	159±8	0.721
Weight (kg)	63±10	60±12	0.195
Glucose (mg/dl)	93±15	93±16	0.976
Creatinine (mg/dl)	1±0.5	0.9±0.4	0.843
Hemoglobin (g/dl)	13±1.7	12±2.8	0.873
AF (%)	7.3	12	0.989
MVA cm2	1.1±0.14	1.0±0.14	0.0001
MG mmHg	12±3	12±3	0.818
PG mmHg	21±5	22±5	0.405
SPAP (mmHg)	50±14	53±14	0.316
LA diamater (cm)	4.6±0.4	4.7±0.4	0.227
MWS	7.6±1.00	7.83±1.03	0.210
Grade 2 MR (%)	3.7	6.9	0.186
Moderate-severe TR (%)	43.6	61.5	0.031
*Mean gradient (mmHg)	15±4.6	14.7±5.6	0.718

AF, atrial fibrilation; F, female; LA, left atrium; M, male; MG, mean transmitral gradient; MR, mitral regurgitation; MVA, mitral valve area; MWS, mitral Wilkins score; SPAP, systolic pulmonary artery pressure; TR, tricuspid regurgitation
**measured from catheterization*

Tablo 2 Hemodynamic findings in 577 patients who had successful mitral valvuloplasty

Parameters	Baseline	Post-procedure
MVA(cm2)	1.05±0.14	1.85±0.46
MG (mmHg)	12±4	4±2
PG (mmHg)	21±5	9±3
SPAP (mmHg)	51±14	38±10
*Mean gradient (mmHg)	15±5	4±3

*MG, mean transmitral gradient; MVA, planimetric mitral valve area; PG, peak transmitral gradient; SPAP, systolic pulmonary artery pressure *measured from catheterization*

[OP-024] continued

Coronary Compression

Age (yrs)	Anatomic Details	Diagnosis	Conduit (mm)	Conduit Type	Pre-existing Stent?
13	Anomalous coronary compressed	DORV	19	homograft	no
18	RCA compressed	TOF	20	homograft	no
43	Potential compression	TOF	22	homograft	no
17	Potential compression	AS/Ross	22	Contegra	no
23	LAD compressed	AS/Ross	23	homograft	no
44	LCA compressed	TOF	22	biological	no

[OP-025]

Comparison of operator radiation exposure during coronary angiograms and interventions by radial and femoral routes- can we decrease the risk with increased experience?

Muhammad Tariq Farman[1], Naveed Ullah Khan[2], Jawaid Akbar Sial[3], Tahir Saghir Khan[2], Nadeem Hasan Rizvi[2], Khan Shah Zaman[2]

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Background: Radial route of access is being increasingly used for coronary angiograms and intervention due to decreased access site complication and early mobilization of the patient. However, radiation exposure of operators was not known in our set up with either route.

Object: The objective of the study was to compare related peripheral arterial route radiation exposure of operators. The secondary objective was to determine the relationship of operator experience with radiation exposure.

Methods & Results: This study was conducted in Catheterization Laboratory of National Institute of CardioVascular Diseases (NICVD), Karachi during the period of July 1st 2009 to September 30th 2009. We studied 1,016 cosecutive adult patients who came for coronary angiography (CA) or Percutaneous Coronary Intervention (PCI). We excluded those patients who came for Right Heart Catheterization or for Valvuloplasty. Out of these 1,016 patients, 928 were diagnostic CAs (734 via femoral route [f-CA] and 194 via radial route [r-CA]) and 88 were PCI (64 via femoral route [f-PCI] and 24 via radial route [r-PCI]). Fluoroscopy time was recorded as a surrogate of radiation exposure. Mean Fluoroscopy time was found significantly higher in patients underwent r-CA (6.3 [±3.8] vs 4.0 [±2.9] minutes; P-value = <0.001) and r-PCI (15.1 [±11.8] vs 10.3 [±7.4] minutes; P-value = 0.02). Mean Fluoroscopy time of well experienced operators was also high in r-CAs (5.4 [±2.9] vs 4.2 [±3.5] minutes).

Conclusion: Radial operators are more exposed to radiation; even well experienced operators can not minimize their exposure as low as femoral operators.

[OP-026]

Angiophrapic findings of tko-tsubo cardiomyopathy

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Background: In recent years there have been increasing reports of Takotsubo cardiomyopathy, a transient, reversible form of left ventricular dysfunction. There are no definite diagnostic criteria established for its diagnosis. Our study presents the angiophraphic characteristics of a series of 65 patients with this condition presenting to the regional catheterization lab of a large integrated health care system in Southern California.

Objective: To study the angiographic data with Takotsubo cardiomyopathy.

Methods: Patients diagnosed with Takotsubo cardiomyopathy between November 2005 and April 2010 after undergoing a cardiac cath for acute coronary syndrome and having LV dysfunction unexplained by corresponding obstructive coronary artery disease in addition to having a follow up echocardiogram demonstrating recovery of LV function were included in this study. We collected data on patient demographics, and reviewed angiographic findings.

Results: The mean age was 67.6 years (S.D. 11 years), 97% were female. Mean ejection fraction on admission was 42% (S.D. 8%) and 60% (S.D. 7%) on follow-up. Angiographic FINDINGS: Right domiant n=50 (78%), Apical aneurysm n=36 (56%), coronary artery disease n=4 (6%), Mitral regurgitation n=13 (20%), Wrap around LAD n=55 (86%).

Conclusions: In our series we found Angiographically, a wrap-around LAD was a common finding with apical ballooning being the most common manifestation of the LV dysfunction. Takotsubo cardiomyopathy can also be seen in coronary artey disease patient.

[OP-027]

Percutaneous revascularization of total or subtotal left main occlusion in the settings of acute myocardial infarction

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Aim: The objective of this study was to evaluate the effect of percutaneous coronary intervention(PCI) of total or subtotal occlusion of left main (LM), and to determine the clinical features, outcome, and prognostic determinants in the setting of acute myocardial infarction.

Method: Between March 2008 and June 2010, PCI of total or subtotal thrombotic LM obstruction was performed in 8 patients with acute myocardial infarction.Data were obtained from review of institutional databases, folder audit, telephone survey of patients, and review of angiogram.

Results: All patients were male and the age of the patients was between 25 and 75.Patients were admitted with anterior myocardial infarction (n=5), and non-ST elevation myocardial infarction(n=3).Seven patients were in cardiogenic shock.Predilatation in six patients, and post-dilatation in two patients were performed. One stent with cross-over technique was used in six patients. The simultaneous kissing stent technique was used in one patient. One patient was died before stents could be deployed. Total 3 of 8 patients perished. After a median follow-up of 53 weeks (range 2-120 weeks), two hospital survivors received elective by-pass surgery because of restenosis, and the rest of patients are still free of any cardiac event.

Conclusion: A percutaneous coronary intervention in patients with left main occlusion complicated by AMI is feasible and effective, and patients discharged alive have a good mid-term outcome. LM occlusion with cardiogenic shock is related to in-hospital mortality.

[OP-028]

CROSSER: Recanalization of coronary chronic total occlusions utilizing high frequency vibrational energy

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Cardiovascular Institute of the South

Background: Single operator, single center experience to determine the safety and efficacy of CROSSER device: a unique high frequency vibrational energy catheter that fragments occlusive fibrous tissue and facilitates guide wire crossing into the distal true lumen.

Methods: A total of 48 patients with chronic total occlusions of the coronaries, who met all the criteria for recanalization per the ACC/AHA guidelines. 26 patients were treated utilizing Crosser and they were compared with 22 identical patients who underwent CTO recanalization with the standard guide wire techniques. The primary efficacy endpoint was the successful crossing of the CTO, with secondary endpoints measuring total case time and fluoroscopy time.

Results:

- 21/26 (81%) of the coronary artery CTO's were successfully crossed using The Crosser catheter as compared to 11/22 (50%) utilizing standard guidewire techniques.
- The average crossing time of the successful Crosser cases was 2 min 19 sec as compared to an average crossing time of 48 minutes with standard guidewire techniques.
- The average flouro time with CROSSER catheter was 26 mins as compared with -88 mins with standard guide wire technique.
- The average total case time in the Crosser cases was 46 mins as compared to 112 minutes in the standard wire group.
- Major adverse events occurred in-0% pts with CROSSER vs.13%pts with standard guide wire technique

Conclusions: This single center, single operator experience of this unique Vibrational energy catheter CROSSER, is a safe and effective therapy in patients with coronary chronic total occlusions.

Endovascular and peripheral interventions (Including neurovascular and carotid)]

[OP-029]

Management of hemoptysis by transcatheter endovascular intervention

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Aim: Hemoptysis is still a major killer with pulmonary complications among people of South Asian Countries. A Hemoptysis of massive type (300-600 ml per 24 hours) can carry 50-80% mortality. Exanguination and Asphyxia are major causes of death.

Method: The bleeding can be successfully stopped by transcatheter deploy of of stainless steel coils(SS coils) and/or Polyvinyl Alcohol Particles(PVA) via endovascular approach. A pre-procedural bronchscopy is performed in 90% of cases to determine the side of bleeding, making the procedural time shorter and successful detection of the bleeding artery.

Results: We present here this procedure on 160 patients (m= 139 f=21) performed between June 2004 and June 2010. Majority(91) affected were right bronchial artery. Bleeding Bronchial artery of aberrant origin(Internal Mammary, Subclavian, Arch of Aorta) was found in 26 cases. There was no intra-procedural mortality. 4 patient had in-hospital mortality due to pulmonary infection following asphyxia. Close follow up showed recurrence in 8 cases in one month and 5 cases in 6 months. There was no complications like transverse myelitis or paralytic problem due to faulty embolization. One coil slipped from left bronchial artery to getting lodged in a branch of Profunda femoris artery, having no clinical consequence.

Conclusion: Transcatheter Endovascular Embolotherapy with SS coils and/or PVA paricles of bleeding bronchial arteries is a safe and highly effective management of Hemoptysis, being often a lifesaving technique giving a good breathing time to investigate and treat the root cause