regimens except for Nicorandil. There was not much hemodynamic alteration with 200μg Nitroglycerin. The incidence of side effects of Nitroglycerin such as headache was also rare. In general, the combination of Nitroglycerin and Calcium Channel Blocker was better than either Nitroglycerin or Nicorandil in preventing the spasm of radial artery. Verapamil 2.5mg used in combination with Nitroglycerin 200μg is better in preventing radial artery spasm than combination of Diltiazem 5mg and Nitroglycerin 200μg. Rashes and vasovagal phenomenon was seen to occur more commonly with Diltiazem.
Conclusion: The occurrence of radial artery spasm during transradial coronary angiography is prevented by intraarterial injection of Nitroglycerin with or without calcium channel blocker. The best regimen to prevent spasm of radial artery in an ideal patient is the combination of 200μg of Nitroglycerin with 2.5mg of Verapamil. Nicorandil was less effective in preventing radial artery spasm.

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Transradial Versus Transfemoral Intervention in ST-segment Elevation Myocardial Infarction Patients Undergoing Primary Percutaneous Coronary Intervention with Drug-eluting Stents

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Background: Transradial intervention (TRI) is drastically increasing in every intervention society around the world because of lower incidence of major bleeding and vascular complications compared with trans-femoral intervention (TFI). However, there have been limited data regarding clinical outcomes of TRI versus TFI in ST elevation myocardial infarction (STEMI) patients (pts) in Asian population.
Methods: A total of 689 consecutive STEMI pts from nine major hospitals were enrolled from Jan to Dec 2009. Cumulative major clinical outcomes up to 12 months were compared between TRI (n=220, 31.9%) and TFI group (n=469, 28.1%).
Results: Baseline characteristics showed that TRI group had more smokers and a higher incidence of hypertension, diabetes mellitus and previous cerebrovascular accidents whereas TFI group had a higher incidence of multi-vessel disease, left circumflex lesion, type B2 or C lesion and chronic total occlusion. TRI group had a lower incidence of major and minor hemorrhage during admission. Clinical outcomes up to 12 months showed that the incidence of recurrent myocardial infarction, target lesion revascularization (TLR) and target vessel revascularization (TVR) were lower in the TRI group. Propensity score matched analysis showed that TRI was an independent predictor of reducing TVR (OR: 0.08 95% CI: 0.01-0.67, p Value=0.019), MACE (OR: 0.37, 95% CI: 0.15-0.86, p Value=0.022), and MACCE (OR: 0.33, 95% CI: 0.14-0.76, p Value=0.010) at 12 months.
Conclusion: In our study, TRI in STEMI pts undergoing primary PCI with DES was associated with lower 12-months TVR, MACE and MACCE. We suggest that TRI may play an important role in improving mid-term major clinical outcomes of STEMI pts undergoing PCI with DESs.

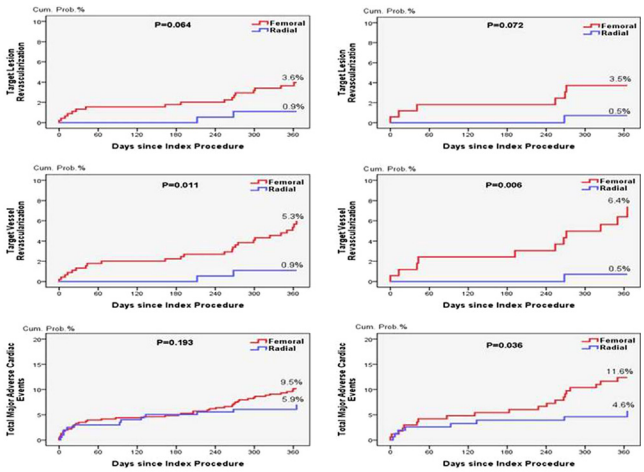

Figure (Left). Kaplan-Meier Survival Curves Describing Cumulative Incidences of Various 1-Year Clinical Outcomes.
Figure (right). Kaplan-Meier Survival Curves Describing Cumulative Incidences of Various 1-Year Clinical Outcomes in Propensity Score-Matched Patients

TCTAP A-122

The Use of Sheathless Eaucath to Overcome Radial Artery Spasm and Perforation

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Background: Transradial access (TRA) for percutaneous coronary intervention and diagnostic coronary angiography has become an emerging trend in the routine practice in most catheterization laboratory as it reduces the incidence of major access site complications such as bleeding and haematoma. Radial artery spasm and perforation are the main reasons for converting a procedure to femoral access. We prospectively investigate the use of Sheathless EauCath (Asahi Intecc, Aichi, Japan) in cases of radial artery spasm and perforation.
Methods: From Jan 2011 till Oct 2013, all patients with angiographically documented radial artery spasm with or without perforation and failure of conventional 5 or 6 Fr diagnostic or guiding catheters to cross the artery despite of repeated intra-arterial nitroglycerin and/or verapamil were elected to attempt for Sheathless EauCath. The procedural success, angiography of the forearm post procedure and access site outcomes were evaluated.
Results: 36 patients, a mean age of 61±9 yrs with 64% male, had significant radial artery spasm (n=25, 69%) or perforation±spasm (n=11, 31%) fulfilled the criteria for the use of Sheathless EauCath. Procedural indications are stable angina in 18%, unstable angina in 3%, non-ST elevation myocardial infarction (NSTEMI) in 54%, ST-elevation myocardial infarction (STEMI) in 15% and 10% for other diagnostic procedures. 6.5 Fr Sheathless EauCath was used in 34 patients (94%) and 7.5 Fr was used in the remaining 2 patients (6%). The Sheathless EauCath was able to overcome the spasm with or without perforation in all cases with all patients achieved a successful procedural outcome. Of the 11 patients who had perforation of the radial artery, 10 patients (91%) had post-procedural angiography showed no extravasation of contrast. The remaining one patient who had trivial residual contrast extravasation outside the radial artery was successfully managed with pressure dressing without significant complications. There was no case of haematoma or access site related bleeding issues.
Conclusion: The Sheathless EauCath can be used safely to overcome the radial artery spasm and perforation during transradial coronary intervention or diagnostic procedures.

TCTAP A-123

Feasibility of Transradial Coronary Intervention in Patients with Cardiac Arrest Caused by Acute Coronary Syndrome

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Background: The latest European Society of Cardiology guidelines for the management of acute myocardial infarction (AMI) in patients with ST-segment elevation recommend transradial coronary intervention (TRI) to reduce the risk of vascular complications. We evaluated the feasibility of TRI in patients with AMI complicated by cardiac arrest.
Methods: We retrospectively evaluated 20 consecutive patients with AMI who required an extracorporeal membrane oxygenator (ECMO) because of cardiopulmonary arrest resistant to conventional cardiopulmonary resuscitation. Percutaneous access sites and evaluation criteria, including onset-to-ECMO time, door-to-balloon time, and 30-day survival, were investigated.
Results: TRI was performed in 13 patients, whereas the other 7 patients underwent transfemoral coronary intervention (TFI). No significant differences in onset-to-admission time (mean ± SD: 26.8 ± 14.6 vs. 17.0 ± 13.3 min), onset-to-ECMO time (41.8 ± 18.8 vs. 39.0 ± 16.6 min), and door-to-balloon time (61.4 ± 19.1 vs. 79.3 ±

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21.0 min) were found between the TRI and TFI groups. The 30-day survival rate was 38% in all patients, 31% in the TRI group, and 43% in the TFI group.
Conclusion: The present study demonstrates that when performed by a skilled operator, TRI is equally feasible as TFI for patients with AMI complicated by cardiac arrest.

TCTAP A-124

A Reliable and Secure Non-pharmacological Way of Preventing Radial Artery Spasm in Transradial Intervention

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Background: Radial artery spasm (RAS) is one of the main reasons causing failure and/or complication of trans-radial intervention (TRI). Causes of spasm include anxious/sensitive patient, small radial artery size, frequent catheter passage especially guiding catheter with relative blunt tip. RAS usually resolves with intra-arterial vasodilator, sedation and/or analgesics but sometimes persists despite all kinds of treatment. Since brachial artery spasm rarely occurs and initial entry of radial sheath with the assistance of the tapered dilator is usually easy, use of long radial sheath up to distal brachial artery should avoid RAS.
Methods: The experience of using 6F 25cm long radial sheath (St Jude Engage TR sheath) by a single operator at a single cardiac catheterization laboratory (CCL) from mid June to October 2013 was reported.
Results: There was a total of 41 coronary procedures done by the author at that CCL during that period. There were 33 coronary angiogram (CA) proceeding to percutaneous coronary intervention (PCI), 5 CA with intravascular ultrasound but not PCI, and 3 CA only. There were 30 males and 11 females, with average age of 62.7 years old and body weight of 67.6 kg. All CA or/and PCI were successfully done trans-radially using the 6F 25cm long radial sheath except in two patients in whom a 6F 10cm Terumo radial sheath was used instead due to the course of the 0.025 inch radial sheath guidewire was considered not entirely satisfactory. No switch over to trans-femoral route was needed. No RAS was noted. No injection of vasodilator/ sedation/ analgesics was needed except for one patient who had mild spasm of distal brachial artery after the 0.035 inch guidewire passing through the loop and straightening the loop at that distal bradial artery. The spasm was promptly resolved with intra-arterial 200ug nitroglycerin. At the end of the procedures, all the sheaths were successfully removed without difficulty or complication. TR bands were used for haemostasis. All patients were discharged the next morning. No major adverse cardiac event or vascular complication was noted during hospitalization and clinic follow-up within a week after procedure.
Conclusion: TRI using long radial sheath up to distal brachial artery eliminated RAS, and appeared safe. A larger scale, prospective randomized trial of long versus ordinary radial sheath in TRI may be warranted.

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Valvular Heart Disease
(TCTAP A-125 to TCTAP A-126)

TCTAP A-125

A Comparison of Post Implant Aortic Valve Gradient of Transcatheter and Surgical Tissue Valves in Symptomatic Severe Aortic Stenosis

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Background: The design and flow profile of transcatheter aortic valve (TAVI) is different from surgical prosthetic valve. We compared the post implantation echocardiographic aortic valve gradient of patients undergoing TAVI using Edwards Sapien in our institution to that of surgically implanted bioprosthetic valves (SAVR) using St Jude Epic, Hancock and Mitrflow valves during the same period.
Methods: Consecutive patients who underwent TAVI between January 2010 and May 2011 were included. Patients who underwent SAVR for native aortic stenosis (AS) were identified from our database and patients who completed at least one follow up transthoracic echocardiogram (TTE) were included for final analysis. The last performed TTE was included for analysis in both groups.
Results: Thirty six patients underwent TAVI valves between January 2010 and May 2011 and TTE data were available for 34 patients who were included for final analysis. Seventy two patients underwent SAVR with a bioprosthetic valve during the same period and TTE data were available for 30 patients who were included for final analysis. Mean age (TAVI 83.4
Conclusion: Our initial results suggest excellent early haemodynamic performance of Edwards Sapien TAVI valve compared to the commonly used surgical bio prosthetic valves. TTE gradients were lower in the TAVI group than the surgical group but this requires confirmation in a large prospective patient series. Haemodynamically non-significant aortic regurgitation was significantly more common in the TAVI group.

TCTAP A-126

Safety and Efficacy of Baloon Mitral Valvotomy in Juvenile Rheumatic Mitral Stenosis

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Background: Rheumatic fever and subsequent Rheumatic heart disease is still widely prevalent in many of Asian and African countries. Rheumatic heart disease causes major morbidity and mortality in younger population in such highly prevalent areas. Juvenile mitral stenosis in age group < 20 years varies uniquely from adult Rheumatic heart disease. Juvenile mitral stenosis often present with morphologically more fibrous valve tissue, severe subvalvular disease and less incidence of valve calcification. Pulmonary arterial hypertension is more common in this subgroup. Balloon Mitral valvotomy in Juvenile mitral stenosis has its own limitation due to underlying unsuitable anatomy of the mitral valve with more of subvalvular fusion and thus result in unsatisfactory outcomes. Moreover dedicated hardware for the size of this age group is not widely available. In this study we analysed the safety and efficacy of Balloon mitral valvotomy in 329 patients of Juvenile mitral stenosis.
Methods: This retrospective study analysed 329 patients of Juvenile mitral stenosis who underwent balloon mitral valvotomy in our centre from 1997 to 2011.The age group ranged from 8 to 20 years with 162 males and 167 females. All patients underwent detailed pre procedure echocardiographic assessment for suitability of balloon mitral valvotomy. Left ventricular angiography in RAO view was used to compliment subvalvular disease assessment. Balloon mitral valvotomy was done by inoue technique. Transeptal septal puncture was done with brokenborough needle assembly with fluoroscopic guidance. Detailed echocardiofram was performed immediately after the balloon dilatation . The safety of procedure is assessed by complication incurred during it. Known complications of Balloon mitral valvotomy like pericardial effusion, cardiac tamponade, Acute mitral regurgitation, arrhythmias and local vascular complications are noted. The efficacy of the procedure identified by achievement of mitral valve area > 1.5 cm2 without development of >grade 2 mitral regurgitation. Also > 50% reduction in mean left atrial pressure was used as an additional surrogate marker of successful procedure.
Results: Out of 329 patients of Juvenile mitral stenosis 94.3% of patients technically underwent the procedure completely. No sex predliction found in juvenile mitral stenosis.3.6% of patients had failed transeptal puncture due to abnormal anatomy of interatrial septum and 2.1% had subsequent failed left ventricular entry of balloon. For commisurotomy Inoue balloon was used in 80.84% of cases, cribier commisurotome device in 3.34% of cases and double balloon, Mansfield balloon and combination in fewer patients. Majority of patients had single balloon dilatation of stenotic mitral valve, while 11% had serial balloon dilatations with upsizing, for unyielding valve morphology.9.1% of patient developed acute mitral regurgitation and out of this 1.5% had severe mitral regurgitation warranting emergency mitral valve replacement. Pericardial effusion and Cardiac tamponade occurred in 2.4% of cases and was managed accordingly. Simple arrthymias noted in 0.6% and local vascular complication was encountered in 1.2% of cases. one patient had cardiac arrest during procedure who was successfully resuscitated. No mortality was reported. Overall 7.5% of cases had encountered procedure related complication.

Procedure was defined successful in 65.95% of cases with good valve area and no significant mitral regurgitation and also without any complications. Significant left atrial pressure reduction was achieved in 65% of cases and < 50% reduction in pressure was noticed in 16.7% of cases.4.86% of patients had very unyielding valve despite serial balloon dilatation.
Conclusion: Balloon mitral valvotomy is still largely used as a definitive therapy,palliative therapy and bridge to surgery in juvenile mitral stenosis.The Nature of the disease and underlying anatomy of valve grossly determine the successful outcome of the procedure in this subgroup. Balloon mitral valvotomy is definitely safe and relatively efficacious procedure in treating Juvenile mitral stenosis.