highly effective and safe primary treatment modality. Initial thrombosis rates exceeded 90% and no serious complications were observed in this series despite a high rate of concomitant antplatelet and antithrombotic therapy.

TCT-404
Efficacy and Safety of Total Percutaneous Femoral Closure Following Stent
graft Implantation Using Preclose Technique
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Background: The preclose technique with the 6 F Progide for complete percutaneous endovascular aortic repair have not been sufficiently evaluated. We investigated the efficacy and safety of the preclose technique in a sufficient and large cases.

Methods: The medical records of 367 patients with 599 preclose techniques for various aortic repairs were reviewed. Procedural success was defined as hemostasis achieved by the preclose technique, without the need for surgical or endovascular procedures. Access related major adverse event (ARMAEs) were considered as those event, such as infection, bleeding, new onset ischemia of the lower leg, hematoma, pseudoaneurysm, arteriovenous fistula, embolement, laceration, femoral artery thrombosis, nerve injury, or death by access site injury.

Results: Procedural success was achieved in 359 of 367 patients (97.8%) and 591 of 599 left or right femoral sites (98.7%). All cases of procedural failure were treated by immediate surgical repair of femoral arteries. The preclose technique was more successful in the smaller sheath. ARMAEs developed in 25 of 367 patients (6.8%) and 26 of 599 sites (4.3%). Access site hematoma was the most frequent adverse events (16 of 367 patients (4.4%) and 17 of 599 sites (2.8%)), followed by puncture site pseudoaneurysm (7 of 367 patients (1.9%) and 7 of 599 sites (1.2%)). Bleeding after arterial closure occurred in 6 of 367 patients (1.6%) and 6 of 599 sites (1.0%). In 2 of 367 patients (0.5%), there was an infection at the puncture site. There were two cases of distal embolization, one case of acute femoral thrombosis, and one case of a vascular laceration at the puncture site. There were no access site related nerve injury, arteriovenous fistula or death complicated by access site.

Conclusions: The preclose technique can be used to achieve hemostasis for stent graft procedure successfully, with a high rate of procedural success and an acceptable rate of adverse event, the most common being puncture site hematoma formation.

TCT-405
Transradial approach decreases in-hospital mortality in patients with
cardiogenic shock. A single-center experience
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Background: Transradial approach (TRA) in percutaneous coronary intervention (PCI) has increased over the past few years. Its use has been shown to decrease mortality compared with the transfemoral approach (TFA) in patients with acute coronary syndrome (ACS). Comparative studies have systemically excluded patients with cardiogenic shock (CS).

Methods: We carried out a prospective, observational registry study of consecutive patients undergoing emergent recascularization between February 2007 and January 2012. An analysis of the clinical evolution of patients with CS during hospitalization was performed according to the approach used in the PCI.

Results: Of 1,400 emergency procedures, 122 had CS, 80 underwent PCI by TFA (65.6%) and 42 by TFA (34.5%). The main reason for choosing TFA was the absence of radial pulse (54.9%). Mortality (64.3% vs. 32.5%, p=0.0001), serious access site complications (11.9% vs. 2.5%, p=0.03) and MACE (combination of death, infarction, stroke, serious bleeding, and postaneomis ischemic encephalopathy) (73.8% vs. 43.8%, p=0.001) were greater in TFA patients. In the multivariate analysis, TFA was a predictor of mortality (OR 0.39 [0.15-0.97]); other predictive factors were age (HR 1.08 [1.02-1.14]) and the procedure of the patient site (HR 0.80 [0.02-0.24]).

Conclusions: In centers with experience, TRA approach for PCI is possible and safe in patients with CS in up to two thirds of the patients. The main cause that prevented the use of TRA was the absence of radial pulse. In the multivariate analysis, TRA was associated with a lower risk of mortality.

TCT-406
Trans-radial balloon aortic valvuloplasty
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Background: Balloon aortic valvuloplasty can be useful for palliation of symptoms in pts not eligible for surgical or transcatheter aortic valve replacement, or a a bridge to AVR. Occasionally transfemoral access is impossible or challenging, due to vascular disease or morbid obesity. We present our experience with transradial access for balloon aortic valvuloplasty in pts not candidates for transfemoral approach.

Methods: 5 pts presented with critical aortic stenosis without femoral access. Transradial access was successfully obtained in all pts. In 1 pt a vascular loop prompted a change from the right to the left radial approach - the others were done via right radial access. Internal jugular venous access was used for PA catheter and pacing. After crossing the aortic valve using 6Fr amlor 1 catheter with straight wire, and changing out for a dual lumen pigtail. Over an exchange length wire, the 6 Fr sheath was exchanged for a 8 Fr, and a 22 mm Tysshack balloon was advanced across the aortic valve and dilated during rapid pacing. Due to inadequate hemodynamics, in 1 case the 8 Fr sheath was exchanged for a 9 Fr, and a 25 mm Tysshack balloon used.

Results: In 5 pts aortic valvuloplasty was attempted and successfully performed. In 1 pt with morbid obesity vigorous diuresis was instead successful in treating his CHF and one year later he underwent successful surgical AVR. 1 of the pts with successful balloon valvuloplasty had oblique lower extremity arterial disease and need for warfarin for a mechanical mitral valve, the others had morbid obesity (mean weight 168 kg). All pts had hemodynamic improvement, mean AV gradient decreased from 47 to 36 (23%), and AVA increased from 0.85 to 1.1 (29% increase). The pt with 9 Fr sheath had small amount of tissue removed with removal of the 9 Fr sheath, but no clinical complications reported.

Conclusions: Radial artery access is a feasible option for the performance of balloon aortic valvuloplasty in patients with poor femoral artery access.
Methods: Of 1918 PCI (1623 pts, aged 66 ± 4 years old; 65% males) performed in our catheterization laboratory from January the 1st 2011 to January the 31st 2012, the 70% (1342) were performed via radial and 57% (300) via femoral (187 over cross from radial, 324 due to operator criteria 65 for no appropriate Sheathless shape available) and 156 PCI (142 pts) initially scheduled via femoral were rescue to radial using SGC. Reasons for SGC use were: moderate to severe radiolucent spasm in 48, tortuousity and/or subclavian elongation in 36, proximal radial take-off in 12, insufficient backup or difficulties to coronary engage in 23 and 37 by expected mismatch between radial artery and catheter needed for PCI.

Results: A total of 164 SGC were employed (98 (60%) of 6.5 Fr), being Super Power Backup (88%) the most common used followed by Amplatz left (21%). Successful rate was 100%, 105 left and 51 right coronary were engaged with SGC. There were 5 left main and 2 right coronary ostium (4.5%) iatrogenic dissections (all resolved with stent implantation). In 13 (8.3 %) cases there was an insufficient backup due to backward slip of the catheter at radial insertion point in the wrist that led to the need of active fixation of the catheter at that point.

Conclusions: The larger inner diameter, hydrophilic coated and tractability of SGC allows performing complex transradial procedure with a high successful rate and low complication. The risk of coronary ostial or dissection with SGC is not negligible and manufacturers should consider diminishing catheter tip’ stiffness. In complex procedures (chronic occlusions, rotobalator, etc) active fixation at the wrist should be considered to avoid the backward slip of the catheter at the insertion point in the wrist.

TCT-409
Radial Access: Is There An Increased Risk Of Operator Radiation Exposure During A Right Versus Left Radial Approach?

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Background: The transradial approach (TRA) is widely being adopted as the preferred method of access for coronary angiography. Previous studies have demonstrated a significant difference in the amount of fluoroscopy time (FT) and calculated radiation dose (RDB) between the head, external thyroid and internal sternum for each operator. Individual variables, such as arteriovenous fistulas, prior coronary bypass surgery, or ST-elevation myocardial infarction were excluded. Radiation dosimeter badges (RDB) were strategically placed on the head, external thyroid and internal sternum for each operator. Individual variables, including FT, scenes, calculated radiation dose, Head RDB, External Thyroid RDB and Internal Sternum RDB, were independently compared between LRA and RRA using a two-sampled t-test.

Results: There was no significant difference in FT, scenes and calculated radiation dose between LRA and RRA. However, a comparison of the RDB reveals a significant difference in direct radiation exposure to the operator when comparing these two approaches. The aim of this study is to determine weather there is a significant difference in direct radiation exposure to the operator when using a LRA versus a RRA.

Methods: A total of 60 consecutive patients were randomized to a LRA or RRA. Patients with arteriousous fistulas, prior coronary bypass surgery, or ST-elevation myocardial infarctions were excluded. Radiation dosimeter badges (RDB) were strategically placed on the head, external thyroid and internal sternum for each operator. Individual variables, including FT, scenes, calculated radiation dose, Head RDB, External Thyroid RDB and Internal Sternum RDB, were independently compared between LRA and RRA using a two-sampled t-test.

Table 1

<table>
<thead>
<tr>
<th>LRA (n=31)</th>
<th>RRA (n=29)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT (min)</td>
<td>13.1 ± 8.9</td>
<td>11.5 ± 8.2</td>
</tr>
<tr>
<td>Scences</td>
<td>15.1 ± 9</td>
<td>16.2 ± 10</td>
</tr>
<tr>
<td>Calculated Radiation Dose (Mgy)</td>
<td>1634.9 ± 921</td>
<td>1853 ± 1545</td>
</tr>
<tr>
<td>Head RDB (mRms)</td>
<td>12.5 ± 9.3</td>
<td>17.7 ± 12.6</td>
</tr>
<tr>
<td>External Thyroid (mRms)</td>
<td>19.1 ± 15.0</td>
<td>33.0 ± 26.9</td>
</tr>
<tr>
<td>Internal Sternum (mRms)</td>
<td>3.0 ± 4.5</td>
<td>4.0 ± 5.3</td>
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</tbody>
</table>

Conclusions: There is a statistically significant increased risk of operator radiation exposure seen in the external thyroid RDB, and a trend towards significance in the head RDB, during a right radial approach.

TCT-410
Arteriotomy Location Guided by Fluoroscopy Plus Real-time Ultrasound: In Defense of the Femoral Approach

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Background: Vascular complications are increased by puncture above or below the common femoral artery (CFA). The FAUST study showed that real-time ultrasound guidance (USG) modestly increased accuracy over fluoroscopic guidance (86.4% vs. 83.3% CFA punctures) and decreased vascular complications. We hypothesized that USG accuracy could be improved.

Methods: 416 consecutive femoral sheath arteriograms were analyzed by a blinded reviewer. Procedures were performed with USG alone or with fluoroscopic femoral landmarks + USG (Xray+USG) by a single operator with USG experience. A microcircuit system and ultrasound probe needle guide were used. We recorded the site of arteriotomy in the femoral artery and also relative to the femoral head (FH), and the relation of the femoral bifurcation (FBI) to the FH.

Results: The puncture was in the CFA in 97.3% (Xray+USG; n=256) and 94.9% (USG: n=158; difference NS). The FBI was above the inferior border of the FH in 47.6% of studies, and above the middle of the FH in 4.1%.

Conclusions: Despite many high bifurcations, Xray + USG guidance permitted CFA puncture in 97.3% of catheterizations. The radial approach, pharmacologic improvements and other strategies have focused attention on the importance of reducing bleeding and vascular complications. Our series suggests that the Xray + USG technique may improve outcomes when the femoral approach is needed, as for large catheter interventions.

TCT-411
Use of Sheathless Guide Catheter with Transradial Percutaneous Coronary Intervention: Single Center Experience with 7853 Procedures

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Background: Sheathless guide catheter is a hydrophilic catheter without use of an introducer sheath so that it decreases stress to radial artery. Although transradial percutaneous coronary intervention (TRI) using a sheathless guide catheter (Sheathless TRI) associates potential limitations such as its procedural complexity or coronary ostial dissection due to its tip stiffness, any large number studies have not shown the data yet.

Methods: Our institution has utilized transradial approach as an initial system for more than ten years. Since we started to use sheathless TRI in 2004, with experiences and improvement of devices sheathless TRI is currently utilized in most TRIs including emergent cases, even in bifurcation or rotational atherectomy by using 7.5 Fr sheathless TRI. We retrospectively investigated the feasibility and safety of sheathless TRI, and examined our institution from January 2004 to December 2011.

Results: A total of 10293 PCIs was performed in this study period by 43 operators including beginners to specialists. TRI was performed in 8868 cases, consisting of 7853 cases (88.5%) of sheathless TRI and 1015 cases (11.5%) of TRI using a conventional sheath. In any cases other than chronic total occlusion procedural success, defined as successful recanalization without conversion to other guide catheter systems, was achieved in 98.9% of sheathless TRI and 98.0% of TRI using conventional sheath (p=0.018). Conversion from sheathless TRI to other system was occurred in 37 cases (0.47%) including 35 cases from sheathless TRI to TRI using conventional sheath and 2 cases from it to transfemoral approach. Coronary ostium dissection was occurred in 20 cases (0.23%) in all TRIs including 16 cases (0.20%) by sheathless TRI and 4 cases (0.39%) by TRI using conventional sheath (p<0.28), which were all baled out by stent deployment resulting in procedural success. Critical arm ischemia requiring amputation or resulting in persistent paralysis was not seen in any cases.

Conclusions: Use of sheathless guide catheter via transradial artery is a feasible approach as an initial system for any interventionists in any situations as long as transradial approach is permitted.

TCT-412
Diltiazem, verapamil or dinitrate isosorbide for prevention of radial artery spasm in percutaneous coronary intervention

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Background: Radial artery spasm (RAS) remains the major limitation of transradial approach for percutaneous coronary interventions (PCI). We have previously demonstrated efficacy of verapamil to reduce RAS but recently, supply problems have occurred and many cathlab have changed verapamil to another calcium channel blocker, diltiazem.